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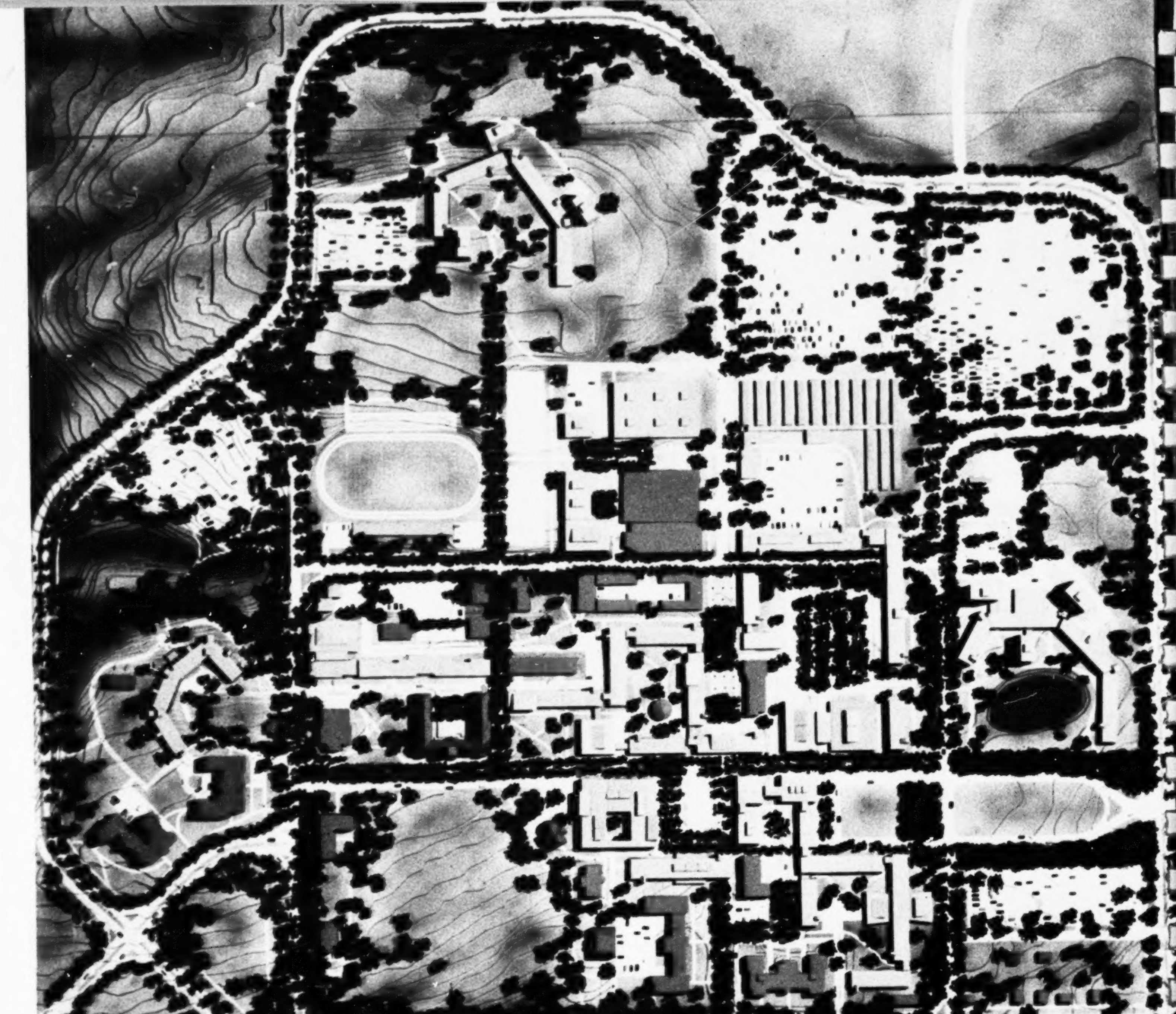
A comprehensive examination of the campus as of the summer of 1964 is brought into uniform format and is concluded with a recommended program and plan for development. It contains a complete profile of the physical form of the University as it is now and as it may be in the future. Divided into five sections, the report discusses background, physical planning considerations, the development program, the plan, and the long range development plan. (NI)


UNIVERSITY OF GUELPH LONG RANGE DEVELOPMENT PLAN

Master Plan

UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

1964

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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July 15, 1965

Chairman and Board of Governors
University of Guelph
GUELPH, Ontario

Dear Sirs,

Pursuant to your instructions of 10th of July, 1964, we are honoured and pleased to present herewith the results of the comprehensive detailed studies required for the preparation of the Long Range Development Plan for the University of Guelph.

In closest collaboration with the Chairman and members of the Board of Governors, the President of the University, his faculty and staff, the Consultants' initiated reviews which disclosed the goals, structure, programme and requirements of the University. The existing University land and facilities were fully assessed so that the potential utilization of these could assist in the sound and economic evolution of the new campus. A close scrutiny of the space requirements and building form was carried on to ensure the soundest integration of the new with the old, still useful, elements of the colleges. Our objectives were to obtain the smoothest and most logical transition of a desirable physical environment, from the history and base of the past to the optimum growth of the new colleges of the University.

Skilled personnel in the fields of physical resources and development, education and administration joined hands with the Consultants' planners, engineers, architects, landscape architects, sociologists, economist and cost experts to examine possibilities for a plan which would produce an evolving campus worthy of a world famous seat of higher learning.
The result has been the production of a plan which stresses the highest order of academic life and social interchange, consistent with providing the most contemporary logistics for administrative functions, student and faculty circulation and vehicular transportation.

As the University grows, the tenets of the plan should assist in strengthening the character and image of the University, enhance the bonds with the community and region and be identified with environmental planning and development of international significance.

The completion of this plan in such a short period of time, and the almost immediate initiation of development programmes, could have only been achieved with the greatest of cooperation of all parties involved. This fruitful experience augurs well for the continued effectuation of the University of Guelph plan.

Yours very truly,

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President
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ACKNOWLEDGMENT

Grateful acknowledgment is made to all who generously assisted in the preparation of these studies and plans.

These were the Chairman of the Board of Governors of the University and its Committees; the President, Deans of the Colleges, Faculty and Staff of the University; the officials of the Province of Ontario, the County, the City, the area municipalities and other agencies. Personnel of the consulting firms contributed beyond the call of duty to hasten delivery of meaningful plans and documentation.

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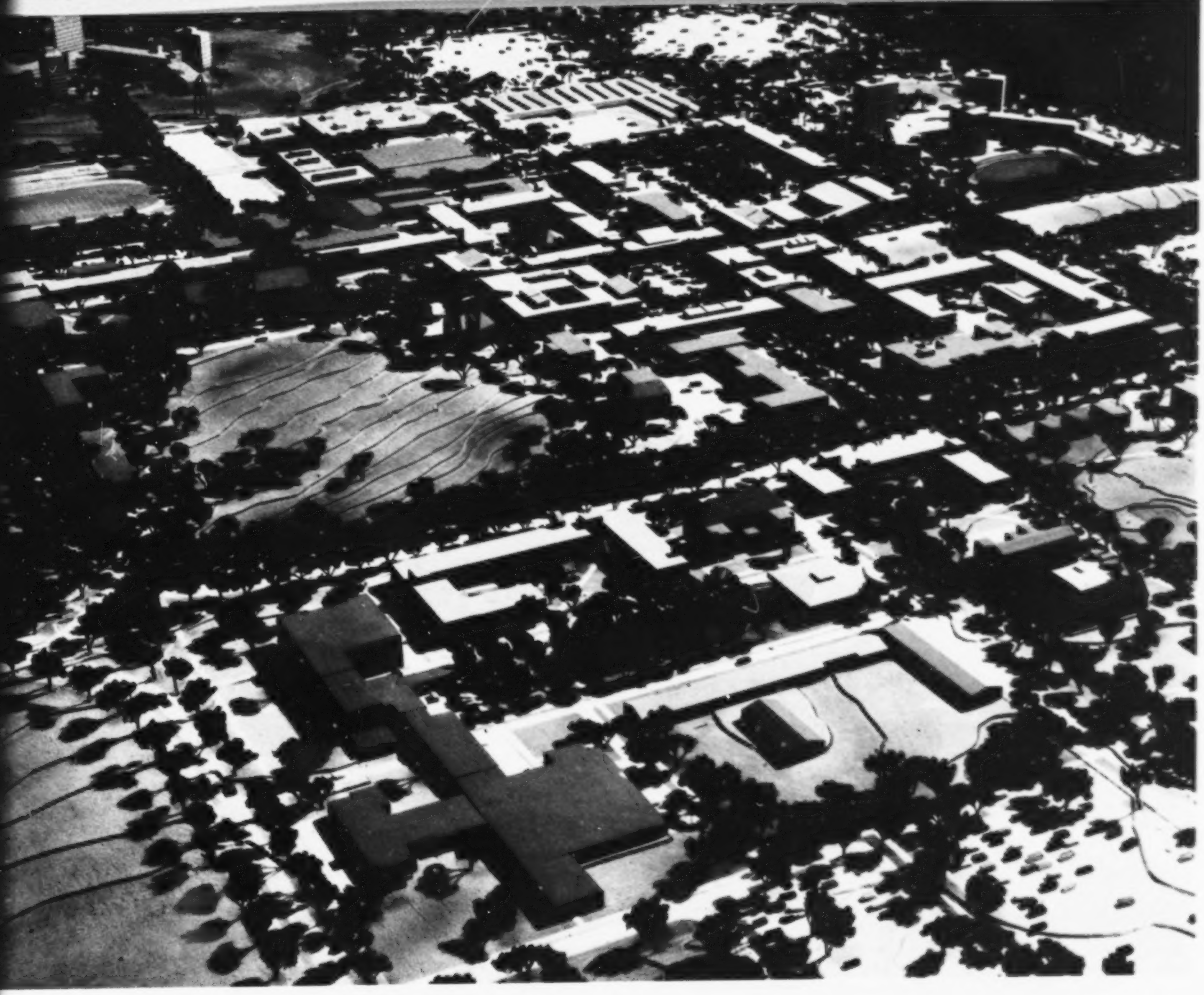


Model view from northwest of proposed University development across Main Campus Open Space and existing Administration Building at left centre

SECTION 1
BACKGROUND

The University of Guelph today occupies the central portions of 800 acres of rolling crop and pasture land bisected by a major highway on the southern edge of the City of Guelph. It has about two million square feet of floor space in 78 major structures. The Campus population totals 2,700 people, of whom 1,800 are students and 321 faculty. Education and research to date have been largely concerned with curricula in the agricultural sciences, veterinary medicine and household sciences.

Within fifteen years, the University is expected to grow to a population of 18,000 people. It will treble the size of its present building inventory and will sustain vigourous teaching and research programmes in the arts and sciences in addition to its traditional interests.

This report brings into a uniform format a comprehensive examination of the Campus as of summer, 1964, and concludes with a recommended programme and plan for development.

A wide variety of source materials has been drawn on: inventories gathered by the Consultants from past reports on the Guelph Campus; operational data provided by Campus administrators, deans, faculty and staff, and special surveys carried out by the Consultants. All these items have been especially organized to investigate the problems and opportunities the University has in articulating a physical plan for its long range development.

For the first time there is now available in a single document a complete profile of the physical form of the University as it is now and as it can be in the future. This would have been impossible without the full confidence and co-operation of all concerned. We are particularly grateful for President MacLachlan's assistance, and that of the Board of Governors, in seeing that the ambitious schedule for planning was not impeded by a lack of contact or opportunity to obtain the information we needed. If our experience this past year is a true indication, and we think it is, the ideals which a new University should represent have firm root in Guelph.

Like all plans this document freezes a moment in time: the recommendations therein are expected to be amended, altered and changed in the next fifteen years. It is largely factual and not written to persuade the public at large of the suggestions it contains except to the extent that a rational and reasonable process of planning—in which the appearance of things plays a role as important as function—might muster support.

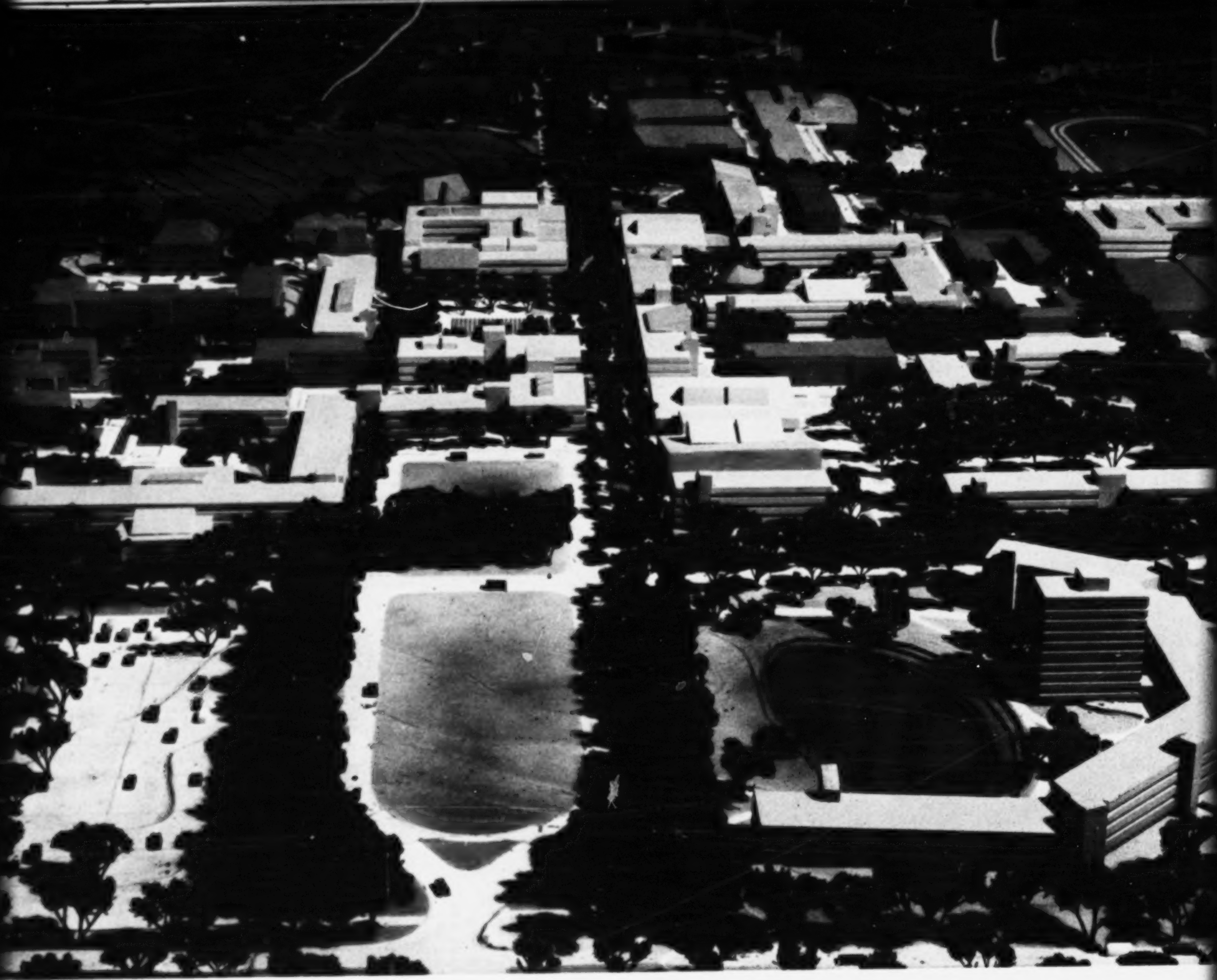
As a synopsis of the planning effort of the last year, this report covers only the highlights of a number of technical documents issued at various stages of the work. These included:

1. Work Programmes for the Development Plan
2. Methodology and Procedures for Estimating Space Needs
3. National Trends in University Library Development in Canada
4. An Evaluation of the Movement of Animal Science Activities East of Highway No. 6
5. Policies on the Use of Land Adjacent to the Campus
6. Long Range Development Programme
7. Report on the Utilization and Assignment of Space
8. Policies and Producers for the Long Range Plan
9. Programming Methodology for New Buildings

Selected items from the above documents have been included in this report and summarized in the following sections.

Section 2. Physical Planning Considerations
Section 3. The Development Programme
Section 4. The Plan
Section 5. Long Range Development Policies

Section 4 and the accompanying drawings may be read without reference to the other sections for a general impression of the Plan and the design proposals. It should be noted that wherever directions are given verbally in this report, they are according to the local convention which orients Highway No. 6 as running north and south when in actuality it runs more from the north-west to the south-east. College Avenue, for example, will be referred to as running east and west.



Model view from south across proposed regional entrance of the University and quadrangle with main pedestrian spine extending beyond Library to MacDonald Hall

SECTION 2
PHYSICAL PLANNING CONSIDERATIONS

2.1 Physiographic Features

Land Forms. The Guelph area is part of a drumlin field which covers 320 square miles in Western Ontario. The field lies between elevations 1,000 and 1,400 feet above sea level, with an average gradient of about 20 feet per mile from east to west. The drumlins are broad and oval, gentle in slope, with some variation in the direction of their axes. This pattern of oval hills, with intervening areas of alluvial soil, gives the basic land form character to the City of Guelph and the University.

The sculpturing of the land into drumlins and depressions is a result of glacial erosion produced by the removal and redistribution of the earth's surface. The drumlins clearly show the deposition of the ice lobe as it pushed westward from the Lake Ontario basin.

The ice which moulded this drumlin field advanced from the south-west and the front of the melting glacier retreated in the same general direction down the plain. The drainage of the ice front was consequently able to find progressively lower and lower outlets, so that the drumlin field is furrowed by parallel valleys running almost at right angles to the direction of the drumlins themselves. The land form pattern of the area consists of drumlins or groups of drumlins fringed by gravel terraces and separated by valleys where tributaries of the Grand River flow.

Incidental to this pattern are several ridges or eskers which cross the plain in the same direction as the drumlins, but cut through in places by meltwater spillways. The Speed and Eramosa Rivers are examples of this action.

From its original site on a gravel terrace at the confluence of these rivers the City of Guelph grew, spreading over the surrounding hills. The Roman Catholic Cathedral sits on a drumlin at the end of MacDonell Street and the Collegiate Institute is on another hill to the north.

To the east of the Speed River the big drumlin is crowned by hospital buildings, while on the northern outskirts of the City, Woodlawn Cemetery and Mary Mount Cemetery rest on the drumlin slopes. South of the City the University of Guelph occupies another group of drumlins.

University lands consist of a group of three parallel drumlins. Macdonald Institute and Ontario Agricultural College are located on the central drumlin with the Administration Building occupying the highest point. The depression to the west of Central Campus contains Ontario Veterinary College, and the depression to the east, the University service buildings and recreation facilities.

The drumlins, and the land depressions that lie on either side of them, afford excellent opportunities for using the natural land forms as design elements. Buildings and spaces situated on and around the elevations can be organized so that the natural foci and the man-made foci reinforce one another.

Soils. Soil types are consistent with the land form. The Campus is surrounded by Burford loam, a gravel with good drainage. The three drumlins on Campus however are composed of Guelph loam. The depressions between the drumlins are made up of London loam (a loam till) and Donnybrook sandy loam (a gravel). All have good drainage, which suggests good building conditions.

Vegetation Pattern. The vegetative character of the Guelph area is primarily given by masses of hardwood canopy trees. Since the natural land forms are consistently topped by groups of trees, the Campus lands seem more heavily wooded than is indicated in the land uses table, (woodlands: 11 per cent of the total acreage). The openness of the depressions around the drumlins reinforces the general Campus appearance of an agricultural and rural scene.

The drumlin to the west of the Central Campus is covered by hardwood species, predominantly maples and elms. The combination of land form and vegetation creates an edge which visually defines the western boundary of the Campus.

East of the Central Campus the drumlin is not covered by vegetation but the depressions on each side contain hardwood stands, predominantly maples, elms, and walnuts. The entire eastern boundary is also visually defined by a mass of these hardwoods and a distant drumlin.

The north and south boundaries of the Campus are marked with rows of trees rather than masses of hardwoods. These rows also give a distinct and pleasing edge to the Campus. As a design principle this kind of edging might be applied to all the Campus boundaries in the future.

The vegetation pattern of the Central Campus is explained by the early history and development of the University. In 1882, at the initiative of the Ontario Fruit Growers Association, a landscape gardener was called from Philadelphia to plan the Campus.

The original design focused on the site of old Moreton Lodge, the high point of the central drumlin and extended along its axis. The planting concept consisted of a rectangular frame of deciduous and coniferous trees defining the Central Campus.

This frame was comprised of a double row of maples along Dundas Road and rows of Norway spruce on College Avenue and behind Massey Hall. As the University expanded along the axis of the land form, new roads were built and planted with double rows of English elms.

The present planting structure, in part, reflects the original concept. There is a double row of maples along Dundas Avenue and English elms along the east entry road but only scattered remnants of the Norway spruce and English elms along Horticulture Avenue.

Groups of Austrian pines were introduced during the course of development and located in areas east and west of the Administration Building. It is apparent that an attempt was made to emphasize and define the academic areas by the use of this plant material.

The vegetative cover of the Campus consists of three general categories of plants—the canopy tree cover, the intermediate tree cover and ground cover. The dominant canopy tree is the hardwood maple (Acer sp.) supported by the Norway spruce (Picea aries), English elm (Ulmus procera) and Austrian pine (Pinus nigra). These canopy trees, once a strong planting structure, are now only skeletal remnants of the original frame. As a result an overall concept is difficult to discern and these plantings fail to reinforce clearly a design structure of the Campus.

The Campus also contains specimen trees of outstanding significance that were planted within the original frame. The Cucumber Tree (Magnolia acuminata), Kentucky Coffee Tree (Gymnocladus dioicus), Copper Beech (Fagus sylvatica atropunicea), English Oak (Quercus robur), Sycamore Tree (Platanus occidentalis) and Tulip Tree (Liriodendron tulipfera) are some typical examples.

Of the great variety of specimen trees on the Campus, these trees are the highlights of a natural vegetative cover and should be preserved.

Some of the numerous intermediate trees and large shrubs are Flowering Crabs (Malus sp.), Saucer Magnolias (Magnolia soulangeana), Dogwoods (Cornus sp.), Mugho Pine (Pinus mugho mughus) and Lilacs (Syringa sp.)

The common ground covers in use are turf, Creeping Myrtle (Vinca minor), Creeping Euonymus (Euonymus sp.), Cotoneaster (Cotoneaster sp.), Junipers (Juniperus sp.) and Yews (Taxus sp.).

The most significant Campus gateway created by plant materials is the entry east of Macdonald Consolidated School which is formed by the rows of English elms that stretch from Highway No. 6 to the Central Campus. The idea of emphasizing major entry points with landscape should continue to be used in future University development.

Pedestrian entry points are not marked by plant materials along the paths. The use of the landscape in this manner, as well as an orderly path system that ties existing and proposed uses together, could begin to give a sense of unity to the central area.

Many of the canopy trees were planted at the turn of the century, and within the lifetime of the

Development Plan, some of these will have to be replaced.

To help reinforce the existing design structure, and to carry out the same quality of design in the expansion areas, both replacements and new planting should be done on the basis of a master planting plan for the entire University.

Open Space Pattern. The combination of plant materials and buildings frame the major open space of the Campus in front of the Administration Building. The central location, quality of planting and size indicate that this area is the physical centre and all development of the space has been oriented to it. It is, at present, the major design feature of the University.

The concept of a central feature should be retained and used in future architectural development.

Secondary open spaces related to the central area are formed by two building groups. The first is formed by Creelman, Mills, and Macdonald Halls and has a strong visual relationship to the central area. The second is formed by Economics, Field Husbandry, and Agriculture Buildings. Although the visual relationship is not well defined, the subtle pattern of open spaces that follows the axis of the drumlin holds considerable potential as a basis of definitive spatial organization.

In contrast to the central open spaces, there are many spaces in the vicinity of important buildings which have the potential of being converted from parking and service lots into landscaped courtyards. As the present circulation and service system will be revised, there is an excellent opportunity to connect these newly designed spaces together in such a fashion as to create a series of pleasant and useful landscaped spaces, largely oriented to pedestrian use.

Excellent views of the University, the City, and surrounding environs are obtained from the tops of the three drumlins. Since the depressions north and south of Central Campus are open, views of the Administration Tower, Water Tower, and Heating Plant Smoke Stack serve as landmarks from the distance.

Special Landscape Features. There are two specially significant landscape features at the University. The grounds adjacent to the Horticulture Building contain plantings, a pond, and a Conservatory that are frequently visited by the public. It represents a quality of design that should be sought in the future in certain areas of the Campus.

The adjacent Eramosa River lands are unusual in geology and planting.

Climate. The climate of Southern Ontario is usually classified as a modified humid continental type. In Guelph the annual temperature ranges from a minimum of 5°F. to a maximum of 98°F. with an average temperature of 43.92°F.

The prevailing winds are from the northeast with an annual mean velocity of 9.8 miles per hour. The average date of last frost in the spring, May 23rd, and the average date of first frost in the fall, September 26th, result in a frost free period of 126 days.

The growing season is a good indication of number of days and duration of sunshine. The beginning of the growing season is April 19th and the end is October 25th resulting in a growing season of 189 days. It is estimated that during this period 45 per cent of the daylight hours are sunshine.

The average annual rainfall is 28 inches primarily occurring from April through September with a peak month in July. The average annual snowfall is 51 inches, primarily occurring from December through March, with its peak month in January.

Climatic conditions, in recognition of the harsh winters, suggest that a tight, compact development is desirable. Hot, humid summers suggest that year-round operation of the school would be considerably facilitated by air-conditioning the new buildings.

2.2 Campus Land Uses

Size. The University has land holdings throughout the Province because varying conditions of climate and soil are required for the extensive research programmes carried out by the Ontario Agricultural College.

There are also many land areas which are leased expressly for the purpose of providing the appropriate ecological conditions for research projects. The main focus of this report is the Guelph Campus and the land holdings within the immediate vicinity.

In general shape the Guelph Campus is an elongated rectangle about two and a quarter miles long, east to west, and about three-quarters of a mile wide, north to south. Total acreage is about 800 acres. An additional 695 acres are owned at Arkell and Hespeler. The former is for animal research and the latter for horticultural research.

The total holdings of approximately 1,500 acres in University control are more than the University of Alberta (900 acres) and the University of British Columbia (1,000 acres); but are less than the acreage at the Universities of Saskatchewan (3,200 acres) and New Brunswick (7,000 acres).

For purposes of identification and future reference in this report the Guelph Campus consists of those lands that lie on either side of Highway No. 6, bordered on the east by South Victoria Road, on the west by Downie Road, on the south by Stone Road. College Road is the north boundary, though to the east the University has holdings on both sides. Edinburgh Road splits the Campus on the west.

For description and comparison the Guelph Campus land uses have been divided into seven categories, as shown in Table 2.1.

Less than 150 acres are built up areas and predominant uses are field spaces of various kinds, most of which are devoted to agriculture. Accordingly, the Central Campus, defined as the area of intensive use and on which the major instructional, research, administrative, service and housing functions are sited, represents less than 20 per cent of the land holdings.

Since most of the land holdings are field spaces, and since it is assumed that some of these fields will have to be used for future building sites, a special study for the use and degree of permanency of each individual field has been made, reported on in full in the Technical Report of September, 1964. The study also gives an accurate picture of the variety of uses to which the agricultural lands are put. In general, most of the field spaces can be moved to new locations, if reasonable notice is given and replacement is made in kind. Because they serve as instruction and research areas the apiary and horticultural fields have to remain close to the buildings which house these departments. Orchards are also considered fixed in place and not movable during the earlier stages of development.

Though the largest land uses are the grazing lands, most of the fields are relatively small functional areas. The largest single field is about 83 acres, the smallest less than a third of an acre. The mosaic of 42 different use areas, many of which can be changed in use, thus affords some degree of flexibility for long range planning.

Commentary. Adequate gross acreage is not of itself an advantage unless land is suitable for development and the criteria of accessibility and location are met. The problem of creating a Central Campus area large enough for long range development is of particular immediate concern.

Central Campus is defined above as the area of intensive use—where the major instructional, research, administration, service and housing functions are sited. Central Campus must be a cohesive entity, in order to allow maximum utilization of all facilities by all members of the University. This encourages educational exchange between the various departments and schools, gives the most economical operational and service pattern, and affords maximum opportunity for a design expression, that symbolizes the unity of purpose for which the University was created.

Because of the institution's history as an agricultural institution, the gross land holdings of the University of Guelph seem as adequate as those of other universities in Ontario. For example, the existing Central Campus totals approximately 171 acres, of which 97 acres is the built up area, the remainder being Campus open spaces, formal recreation areas, parking and roads. For the present size of the University population this seems reasonable, when compared to the 200 acres at th University of Waterloo, 300 acres at University of Western Ontario, and 200 acres at McMaster University.

However, in terms of long range development additional small parcels of lands might be required to fill out the Central Campus area.

A second problem of usable acreage is the fact that Highway No. 6 divides the Central Campus into two parts. It is a visual and acoustical intrusion into the academic area.

Improvement or relocation of the highway is not likely to reduce its risk as a source of possible accidents to faculty and students moving from one side to the other. Even if a by-pass for Highway No. 6 is located elsewhere the road is likely to remain as a major city thoroughfare. It represents the largest physical impediment to achieving a useful linkage between the University lands on either side.

The studies indicate the long range development strategies which can meet the University's development programme. The optimum strategy would concentrate all instruction and research to the east of the highway requiring the relocation of the route to by-pass the growth of the Campus. If this cannot be achieved, it would be detrimental for Highway No. 6 to cut segments of the Campus away from the central and major parts of the University. In this circumstance, it would be necessary to depress the Highway and to build a connecting bridge for movement between areas of instruction and research.

These strategies are described later, along with the costs and benefits involved. They are stated here to indicate that the existing Central Campus areas, will be the heart of future growth, and most of it should be to the east of the present line of Highway No. 6.

The total proposed land uses recommended are shown in Table 2.1, but include only land now owned by the University. They do not include the several small parcels of land that may be purchased in order to complete the proposed circulation system.

TABLE 2.1

MAIN CAMPUS LAND USES — EXISTING & PROPOSED

Land Use		Existing Acres	Proposed Acres
Built-up Area	(cc)	108.7	141.0
Major Campus Open Spaces	(cc)	18.1	39.7
Secondary Open Spaces (roads & minor uses)	(cc)	42.9	95.8
Formal Recreation Areas	(cc)	13.0	25.5
Parking Areas	(cc)	8.9	55.2
Cultivated Fields, Orchards, Pastures and Animal Holding Areas		532.4	366.8
Woodlands		75.4	75.4
Total		799.4	799.4

Central Campus: (cc)

Source: Consultants' study of University lands 1964: Review with Department heads and Deans: Consultation with University Officials. Long Range Development Plan.

2.3 Campus Circulation

Major Approaches to the Campus. The Campus is presently served by one key road, Highway No. 6. Though far below any reasonable engineering standards which might be applied to an important Provincial highway, it is currently the best link road between the Campus and the City of Guelph, the Toronto Metropolitan area via Highway No. 401, and the Kitchener-Waterloo-Galt-Preston region.

A series of secondary roads flank and serve the Campus. These include Victoria Road on the eastern boundary, College Avenue and Stone Road on the northern and southern boundaries respectively, and Edinburgh Road and Downie Road on the west. The OVC Research Station is located adjacent to Stone Road, between Edinburgh Road and Downie Road. Downie Road, College Avenue and Highway No. 6 are paved and carry the heaviest traffic. Highway No. 6 carries a great volume of interurban traffic and presents a problem by splitting the Campus into two parts.

The main Campus entry-exits are on Highway No. 6: one at College Lane, one forming the loop up to the Administration area, and the third continuing the loop through Macdonald Institute and meeting Highway No. 6 on the Guelph side of Macdonald Consolidated School. This particular entry exit is the closest point of entrance for most of the traffic destined for the school.

Other entry-exit points occur along College Avenue. Although minor roads, they connect to important service points on either side of the Administration Building.

Despite all the roads, and several handsome vistas into the campus, the University has no "main gateway", functional or symbolic. The connections between the internal circulation system and the outside roads are poor.

Internal Circulation. Circulation problems inside the Campus are many and stem from the lack of an overall development plan. Individual buildings have been sited, as if they were the last ones to be placed on Campus and as a result no basic circulation system exists even though the Campus is criss-crossed with roads. Vehicular access to buildings is very limited.

"Front door" problems are particularly acute at four places on Campus where pedestrians and vehicles are in conflict: at the south-west corner of the Administration Building, where students cross to go down the hill to the Physical Education Building; at the corner intersection in front of Massey Library; in front of Creelman Hall at both the Macdonald Institute and Mills Hall sides; and at the corner of Highway No. 6 and College Avenue, where students cross to the commercial area and to OVC.

Service Pattern. The major service areas and roads lie on the south side of the Campus, and include College Lane and the roads into the maintenance area. There are frequent movements of tractors and farm equipment, service trucks, oil deliveries, and food supplies in this area. The mixing of service areas and instructional areas in the heart of the Campus, plus the confusing and inadequate circulation system, are problems which the Development Plan will correct.

The one-way routing of traffic adjacent to Massey Hall is confusing, as is the superfluous number of service roads in the maintenance area. OVC's research and educational activities west of Highway No. 6 are poorly connected to either the Campus on the east side or the neighbouring Dairy and Poultry departments to the west. Better circulation and connection from one part of the Campus to the other has high priority in the development programme.

TABLE 2.2
CAMPUS ROADS

Location	Road Runs	Length	Width	Surface	Condition 1	Condition 2	Condition 3	Condition 4
Sheep barn to Phys. Ed. Building	E-W	700'	22'	gravel			x	
Phys. Ed. Bldg. to #6	E-W	2000'	28'	asphalt	x			
#6 to Dairy barn	E-W	750'	19'	asphalt		x		
College Lane to College Ave. west of Administration	N-S	1500'	20'	asphalt		x		
			20'	concrete		x		
College Ave. to #6	N-S	1050'	20'	asphalt		x		
#6 to Economics Bldg.	E-W	450'	18'	asphalt		x		
Economics to Administration	E	500'	18'	asphalt	x			
South of Massey Hall	W	450'	18'	asphalt		x		
South of Mills Hall	E-W	510'	20'	asphalt		x		
			20'	gravel			x	
South of Chemistry	E-W	250'	15'	cinder				x
North of Animal Husbandry	E-W	200'	25'	asphalt				x
College Lane to College Ave. east of Administration	N-S	1400'	30'	asphalt			x	
Firehouse to College Ave. east of Agr. Engineering	N-S	1175'	35'	asphalt	x			
College Lane to College Ave. east of Power Plant	N-S	1350'	35'	cinder				x
			35'	asphalt				x
Generator bldg. to College Ave.	N-S	800'	30'	asphalt	x			
North of Phys. Ed. Bldg.	E-W	300'	18'	asphalt	x			
West of Bull Barn	N-S	300'	12'	cinder			x	
East of Soils Bldg.	N-S	200'	18'	asphalt		x		
West of Soils Bldg.	N-S	350'	10'	asphalt		x		
College Lane to Refrig. Stor.	N-S	825'	22'	asphalt	x			
College Ave. to Watson Hall	N-S	500'	15'	asphalt		x		
College Ave. to West side of Mac. Institute	N-S	1100'	24'	asphalt		x		
South of Mac. Hall	E-W	250'	18'	asphalt		x		
South of Graham Hall	E-W	200'	15'	asphalt		x		
North of Graham Hall	E-W	425'	17'	asphalt		x		
West of Graham Hall	N-S	800'	25'	asphalt		x		
West of Nutrition	N-S	400'	20'	asphalt			x	
College Lane to Dairy Building	N-S	500'	12'	asphalt			x	
East of Dairy Bldg.	N-S	325'	20'	asphalt			x	
West of Dairy Bldg.	N-S	375'	30'	asphalt		x		
North of Dairy bldg. to Breeder's Service	E-W	675'	20'	asphalt		x		
North side of OVC	E-W	800'	25'	asphalt		x		
College Ave. to Animal Hospital	N-S	350'	30'	asphalt		x		
East of Animal Hospital	N-S	450'	25'	asphalt		x		
South side of OVC to Poultry Pathology	E-W	1175'	25'	asphalt		x		
			25'	gravel		x		
West of Poultry Pathology	N-S	475'	25'	gravel		x		
West of OVC Surg. Wing	N-S	500'	22'	asphalt		x		
OVC RESEARCH STATION:								
Stone Rd. to Bldg. #71	N-S	1000'	12'	gravel			x	
Edinburgh Rd. to Bldg. #72	E-W	800'	18'	gravel		x		
East of Bldgs. #73 & #76	N-S	525'	18'	gravel			x	
West of Bldgs. #73 & #76	N-S	300'	10'	gravel				x

Condition: 1 — paved and curbed in good condition
2 — well maintained
3 — deteriorating
4 — requiring resurfacing

Note: Road widths vary over their length; the road width indicated was taken as the predominant width.

Source: Consultants' field studies.

TABLE 2.3
SIZE, LOCATION AND CONDITION — PARKING LOTS

Location	# sq. ft.	# acres	Surface	Condition			
				1	2	3	4
Phys. Ed.	109,160	2.48	asphalt	x			
Soils (main)	35,574	.80	asphalt	x			
(faculty)	3,230	.07	asphalt	x			
Firehouse (rear)	2,430	.05	asphalt	x			
Power Plant	5,300	.12	cinder				x
Agr. Eng. (rear)	4,320	.09	asphalt	x			
Grounds Dept.	3,600	.08	asphalt	x			
Beef Barn	2,000	.05	gravel				x
Laundry (rear)	5,000	.11	asphalt	x			
Administration (court)	22,100	.50	asphalt	x			
Creelman	2,970	.07	gravel		x		
Watson	9,120	.21	gravel			x	
Eng. Annex (rear)	5,200	.11	gravel				x
(side)	1,000	.02	dirt				x
Animal Husbandry	4,000	.09	asphalt	x			
Apiculture	900	.02	asphalt		x		
Horticulture	9,000	.20	asphalt	x			
Biology	43,200	.98	asphalt	x			
Crop Science (side)	6,000	.14	gravel			x	
Economics	6,600	.15	gravel		x		
Mills Hall (west)	4,000	.09	asphalt		x		
(east)	2,400	.06	asphalt		x		
Memorial Hall	6,400	.15	gravel		x		
Microbiology (west)	1,500	.04	gravel			x	
(east)	3,200	.07	gravel			x	
Mac. Institute (side)	4,800	.10	asphalt		x		
(rear)	4,600	.10	asphalt	x			
			gravel		x		
Poultry	2,600	.05	asphalt		x		
Nutrition	4,750	.10	asphalt		x		
Dairy Barn	4,500	.10	asphalt		x		
Dairy Building (front)	1,800	.04	asphalt	x			
(side)	2,200	.05	asphalt	x			
OVC Laboratory	1,950	.04	asphalt	x			
			gravel				x
Animal Hospital (west)	1,800	.04	asphalt	x			
(east)	7,416	.16	asphalt	x			
			gravel				x
OVC Main Bldg.	13,446	.30	asphalt	x			
OVC Extension	4,860	.11	asphalt		x		
OVC Surgical (rear)	4,600	.10	asphalt		x		
(front)	5,940	.13	asphalt	x			
(side)	4,800	.10	asphalt		x		
Artificial Breeders	16,900	.38	asphalt	x			
Poultry Pathology	7,500	.17	NA	NA			

Condition: 1—Good surface, well maintained, marked
2—Reasonable surface, no markings
3—Deteriorated
4—Replacement or resurfacing

Source: Consultants' field studies.

Table 2.2 summarizes the study of size, location, and condition of the Campus roads. Few of the Campus roads are in first class condition, i.e., paved, curbed and well surfaced. The fact that most of the roads are not paved is an advantage since it will allow the relocation and reorganization of the internal circulation system with the least cost to the University.

Parking. The University presently has about 9 acres of parking divided into 32 parking areas. An evaluation of the condition of these areas is shown in Table 2.3.

Parking areas, especially those in front of buildings, are poorly placed with reference to their connection to the road system. They also intrude into the vistas created by the major campus open spaces. As many of the lots are located on a major internal road, traffic in and out of parking lots interferes with the traffic on the major roads.

Typical of the aesthetic problems are the asphalt lots surrounding OVC's main entrance, which present a grim front to the public side of the campus.

Most of the lots have good surfaces, are well marked and well maintained. The major problems are those typical of any growing university. Many lots are too small and the scatteration throughout the Campus helps little to give a unified visual appearance to the Campus.

The presence of many small lots means that the pedestrian traffic inevitably gets tied up with the automobile traffic, especially since the entrances and exits to the lots are not arranged for the purpose of creating separate flow patterns for pedestrians and vehicles. The basic problem however, is the fact that the parking areas are poorly integrated with the Campus circulation system.

Obviously parking, internal circulation, servicing of buildings, and the connections between the campus circulation systems and the external roads are part of one system of movement. To aid in the design solutions all service points on all buildings and structures, as well as the total existing circulation system have been identified in the preparation of the plan and these studies have influenced the design of the plan.

2.4 Campus Buildings

Surveys. The Long Range Development Plan is to take maximum advantage of existing buildings. In order to determine which buildings were capable of renewal and renovation a detailed study of each building on Campus has been undertaken. This survey was also necessary because floor plans were not available for all structures and information on utilization was deficient.

The two part survey covered the architectural and structural conditions of the buildings and the interior uses. Part one, the conditions survey, recorded the following information:

Building Name
Year of Construction
Year of Major Renovations
Number of Floors
Gross Square Footage
Materials of Construction
Construction Costs
Renovation Costs
Building Valuation
Replacement Cost
Capital Value of Fixed Equipment
Utilities Available
Principal User
Number of Elevators, Type and Capacity
Exterior Building Condition
Interior Building Condition

Part two of the survey consisted of a room by room inspection of each floor, including size, use, capacity and fixed capital equipment.

Table 2.4 summarizes the significant data from the structural survey. It includes a code number assigned to the building for planning reference, the building's official name, affiliation or user, predominant building material, total gross square footage, year of construction and condition. The table is arranged chronologically in order of year of construction. Because of limits of time the survey dealt only with buildings that were used for teaching or research purposes, or were located in the vicinity of such buildings. Thus minor sheds and structures are not included.

The structures not included in the survey constitute less than five per cent of the total space on Campus. Nonetheless, for the first time the University now has a comprehensive description of the existing physical plant.

The study indicates that the Campus consists of approximately 1.80 million gross square feet with 1.25 million net assignable square feet. Of the seventy-eight buildings surveyed 40 per cent (31 buildings) were affiliated with OAC, twenty-two per cent (17 buildings) with OVC, four per cent (three buildings) with Macdonald Institute, four per cent (three buildings), with joint or special uses and 30 per cent (24 buildings) with general University use.

The last group represents about a half-million square feet of building space. Buildings affiliated with OAC total about 800,000 square feet and OVC about 250,000 square feet.

The survey shows that brick is the predominant building material on Campus. 14 buildings are listed as frame construction, 48 as brick, 7 as stone, 2 as steel, 1 as glass and iron, and 5 as block structures.

Examination of age indicates that 12 buildings were constructed prior to 1900, 14 in the period 1900-1919, 19 between 1920-1939, 6 from 1940-1949, 18 from 1950-1959, and 9 since 1960. The general trend indicates a steady growth in construction up to 1940, a drop during the war years, and then a significant increase in the following period. About a third of the space on Campus has been built in the last ten years. The types of buildings, that is functional uses, have been spread over time, though no residences have been erected since 1931.

The condition surveys (exterior and interior) are recorded as a four part scale in Table 2.4. Condition 1 are exteriors which are well maintained showing no need for renovation. Condition 4 are buildings where the cladding is rotted, the structure exposed, and a general state of blight is evident. Conditions 2 and 3 are variations of the extremes.

Interior conditions are assessed on the basis of absence or presence of adequate lighting, ventilation, noise, good floor surfacing, conditions of walls, ceilings and furniture. Again a four number scale is used.

In general the exterior conditions of the buildings are in better shape than the interior conditions. Only 60,000 square feet is in condition 4—exterior. The buildings are: Chemistry, South Barn, Microbiology, and Chemistry Annex. Three buildings, 48,735 square feet, are in condition 4—interior. These are: Extension Education, Incubator Building, Chemistry Building.

Generally speaking the older the building, the worse the conditions. No structure built in the last ten years is less than condition 2, exterior or interior. As could be expected, frame buildings tend to be the most difficult to maintain.

In terms of size of buildings, the year 1903 has special significance for the University, when the first large non-farm buildings were erected on Campus: Macdonald Institute, Macdonald Hall and Massey Hall totalling about 186,000 square feet. In no other year in the University's history were more buildings completed.

The largest building on the Campus is the Administration Building, constructed in 1931, totalling 144,000 square feet. The only other buildings over 100,000 square feet are the Chemistry-Microbiology Building (113,000 square feet) 1964, and the Physical Education Building (110,000 square feet) 1958. As a pattern, the growth has been one of great variety with little apparent order.

Conclusions. The preliminary results of the Space Utilization Study are shown in Table 2.5. This study covers all rooms and buildings on Campus. The general analysis indicates that the University has a good opportunity to double its present utilization, if environmental conditions in obsolete facilities are improved, a centralized space scheduling effort undertaken, and by filling in of existing stock, aimed at meeting the critical shortage of medium sized classrooms, faculty offices and seminar space.

No historical records on the buildings that predate World War I could be traced. The oldest structure on Campus is the Sheep Barn (1879). The high point in architectural interest was reached in 1903. Macdonald Institute and Massey Hall have merit, both as symbols of the past, and as examples of some of the finest architecture of their period in Western Ontario.

The long term capabilities of Macdonald Institute to serve future needs are considered quite limited by inherent deficiencies in the interior circulation plan and structure. In time the building may have to be demolished. Massey Hall on the other hand has excellent potential for serving the University in some capacity other than a library.

It has already been indicated that economy of development requires the continuance in use of all buildings which can be reasonably exploited to meet future requirements. To this principle of planning — the concept of creating physical and symbolic links to the past has to be added. In this respect the historic structures on the Campus have to be part of the new plan.

Most of the physical problems on the Campus can be attributed to a lack of a comprehensive development plan and an absence of sufficiently reasoned information and criteria for making decisions on site location and construction. The present studies were launched to overcome these shortcomings.

Solutions to date indicate that by (a) concentrating new development in the vicinity of the existing instructional areas, (b) selectively allocating funds for rehabilitation of the interiors of buildings which can be considered part of the long range inventory, (c) minimizing investment in structures which do not have long range usefulness, and (d) raising the percentage of utilization of new and old spaces to an optimum level, substantial savings can be expected in the capital construction and operational budgets.

TABLE 2.4
BUILDING SURVEY

Code #	Building Name	Affiliation	Building Material	Gross sq. ft.	Year Const.	Condition	
						Ext.	Int.
66	Sheep Barn	OAC	frame	16,400	1879	2	2
5	President's Res.	Univ.	stone	NA	1882	NA	
10	Bursar Hall	Univ.	stone	5,400	1882	2	2
22	Residence	Univ.	stone	NA	1882	NA	
52	Beef Barns	OAC	frame	47,040	1886	3	3
15	Engineering Annex	OAC	brick	11,340	1891	2	3
23	Extension Education	Univ.	brick	18,150	1892	3	4
34	Nutrition Building	OAC	brick	7,140	1893	3	3
35	Incubator Building	OAC	brick	7,410	1893	3	4
16	Animal Husbandry	OAC	brick	18,420	1895	3	3
55	Power Plant	Univ.	brick	16,878	1895	2	2
12	Chemistry	OAC	brick	23,175	1896	4	4
69	South Barn	OVC	frame	4,900	1900	4	3
25	Economics	OAC	brick	22,100	1901	2	2
17	Judging Pavilion	OAC	brick	3,850	1902	2	2
1	Mac. Institute	MI	brick	86,284	1903	2	2
2	Mac. Hall	MI	brick	70,920	1903	2	2
24	Massey Hall	Univ.	brick	29,050	1903	3	3
3	Mac. Cons. School	....	brick	11,088	1904	3	3
58	Grounds Office	Univ.	brick	20,312	1906	3	2
14	Agr. Engineering	OAC	brick	42,840	1906	2	2
37	Dairy Barn	OAC	frame	29,556	1912	3	3
21	Field Husbandry	OAC	brick	35,500	1913	2	3
7	Creelman Hall	Univ.	stone	30,392	1914	2	3
32	Graham Hall	OAC	brick	25,960	1914	3	2
26	Physics	OAC	brick	26,880	1916	2	3
63	Residence	Univ.	brick	NA	1920	NA	
78	Residence	Univ.	NA	NA	1920	NA	
8	Mills Hall	Univ.	stone	49,895	1920	2	2
20	Apiculture	OAC	brick	12,288	1920	2	3
38	Dairy Building	OAC	brick	44,616	1921	2	2
39	OVC Main Bldg.	OVC	brick	42,340	1922	2	2
41	Laboratory Building	OVC	brick	5,248	1922	2	2
45	Residence	Univ.	brick	NA	1922	NA	
47	Residence	Univ.	brick	NA	1922	NA	
9	Memorial Hall	Univ.	stone	21,645	1924	2	2
33	Meat Laboratory	OAC	brick	9,528	1924	3	2
4	Watson Hall	MI	brick	17,100	1927	2	2
59	Trent Institute	OAC	brick	11,240	1927	3	3
62	Associate Dormitory	OAC	brick	13,720	1927	3	3
65	Water Tower	Univ.	steel	490	1930	2	—
28	Horticulture	OAC	brick	39,032	1930	2	2
29	Greenhouses	OAC	glass	43,971	1930	2	2
11	Administration	Univ.	stone	144,380	1931	2	3
61	Grounds Dept.	Univ.	brick	2,838	1931	3	3
40	OVC Extension	OVC	brick	48,159	1942	2	2
42	Animal Hospital	OVC	frame	15,698	1942	3	3

Code #	Building Name	Affil-iation	Building Material	Gross sq. ft.	Year Const.	Condition Ext.	Condition Int.
49	Bull Barn	OAC	frame	6,800	1942	2	2
6	Microbiology	OAC	frame	16,980	1944	4	3
13	Chemistry Annex	OAC	frame	15,000	1946	4	3
36	Judging Pavilion	OAC	frame	7,842	1947	3	3
76	Laboratory Animals	OVC	steel	1,400	1951	2	2
73	Laboratory Animals	OVC	block	2,550	1951	2	2
53	Fire House	Univ.	brick	1,350	1951	2	2
74	Offices	OVC	frame	3,600	1953	2	3
51	Seed Cleaning Building	OAC	brick	27,500	1954	2	2
75	Dog Colony	OVC	block	2,100	1954	2	2
54	Vehicle Storage	Univ.	brick	29,250	1957	2	2
57	Paint Shop	Univ.	brick	11,468	1957	2	2
60	Laundry	Univ.	brick	19,305	1957	2	2
64	Field House	Univ.	frame	3,640	1958	2	2
71	Laboratory Animals	OVC	block	4,550	1958	2	2
72	Radio Isotope Studies	OVC	block	2,800	1958	2	2
50	Phys. Ed. Bldg.	Univ.	brick	110,665	1958	2	2
48	Science Service	....	brick	NA	1958	NA	
70	Piggery	OVC	block	10,200	1959	2	2
18	Soils	OAC	brick	47,700	1959	2	2
19	Soils Greenhouses	OAC	brick	7,764	1959	2	2
30	Refrigerated Storage	OAC	brick	12,868	1959	2	2
68	Mink Ranch	OVC	frame	3,000	1960	2	2
67	Mink Ranch	OVC	frame	4,500	1960	2	2
77	Driving Shed	OVC	frame	2,800	1960	2	2
56	Generator Bldg.	Univ.	brick	11,968	1960	1	1
31	Biology Bldg.	OAC	brick	80,600	1961	1	1
43	Artificial Breeders	NA	brick	13,000	1963	1	1
44	Surgical Wing	OVC	brick	65,667	1963	1	1
46	Poultry Pathology	OVC	brick	32,600	1964	1	1
27	Chemistry & Micro.	OAC	brick	113,600	1965	1	1
				1,805,874			

Source: Consultants' Survey.

The gross square footages listed above were derived from the following sources:

A. Data provided to Consultants by the Buildings and Grounds from recent architectural drawings;
B. Data obtained by the Consultants by scaling existing drawings;
C. Data obtained by the Consultants by actual measurement of the buildings.

The buildings in each of the above categories are:

Category A.	3, 8, 9, 10, 11, 27, 31, 38, 43, 44, 46, 50, 53.
Category B.	1, 4, 7, 12, 13, 14, 15, 16, 18, 19, 20, 21, 23, 24, 25, 26, 30, 32, 39, 40, 49, 51, 52, 54, 55, 56, 57, 58, 60, 62, 65.
Category C.	2, 6, 17, 28, 29, 33, 35, 36, 37, 41, 42, 59, 61, 64, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77.
NA	5, 22, 45, 47, 48, 63, 78.

TABLE 2.5
SUMMARY OF ASSIGNABLE SQUARE FEET OF BUILDING SPACE

Room Type Code*	Room Types	Number of rooms	Assign. square feet	Per cent subtotals	Per cent total
ACADEMIC AND GENERAL FACILITIES:					
1100	Offices	639	116,068	12.0	9.3
1200	Classrooms, Lec., Sem.	86	98,440	10.2	7.9
1300	Laboratories & Other Special Purpose Rooms	351	207,170	21.5	16.6
1400	Instruction-Related	2	113	....	....
1500	Student-Staff Service	79	29,061	3.0	2.3
1600	Service Areas	1,231	417,358	43.4	33.4
1700	Library	34	28,725	3.0	2.3
1800	Museum & Gallery	5	14,362	1.5	1.1
1900	Physical Education	11	51,819	5.4	4.1
	Subtotal—Academic and General	2,438	963,116	100.0	77.0
SUPPORTING FACILITIES:					
2000	Residential	488	136,339	47.5	10.9
2100	Food Service	27	30,677	10.7	2.4
2200	Infirmary	22	8,267	2.8	0.7
2300	Auxiliary Enterprises	31	6,146	2.1	0.5
2400	Physical Plant Oper.	158	106,125	36.9	8.5
	Subtotal—Supporting	726	287,554	100.0	23.0
GRAND TOTALS		3,164	1,250,670	....	100.0

*Tabulation Code used in Space Utilization Study

2.5 Services On Campus

Water Supply. The Campus and environs have a supply of water which at the present time is adequate for the normal demands placed upon it. The system is linked to Guelph Township by a metered connection which permits supply to the Township, although this is not normally used.

The source of potable supply is a number of deep wells within the University lands, ranging in capacity from 100 gpm to 125 gpm. The wells vary in depth from 191 ft. to 288 ft. and the total present yield is approximately 0.6 million gallons per day of potable water. There is also provision in two wells for the production of an inferior quality of water for irrigation purposes.

The wells have, within recent months, been overhauled and are now equipped to deliver the maximum amount of the best quality of water available from the aquifer. An additional well has recently been drilled and tested and, it is understood, will be capable of delivering a significant volume of water.

Since all of the wells apparently probe the same aquifer the question arises as to the limit of good quality water which can be pumped from the aquifer. Obviously excessive pumping will result in the production of poor quality water.

Water is pumped from source to a holding reservoir, treated and then stored in a 0.5 million gallon underground reservoir. From this it is pumped to a 135 ft. elevated steel water tank of 50,000 gallon capacity which supplies the Campus with pressures in the 70-75 psi range.

This tank is in an exposed position on the Campus but is functioning well and appears to be in fair condition. The major problem of the water supply system at present is the inadequacy of the treatment process and the limitations of its capacity.

Chemical analysis of the water indicates a high hardness and iron content. Treatment for normal domestic use is restricted to sodium zeolite softening which reduces the hardness content from 20 to 5 grains per gallon. However, this process does not provide for the removal of iron and other chemicals of a corrosive nature. This property of the water has resulted in extremely high maintenance costs in renewing piping as evidenced, when the Chemistry and Microbiology Building was being built and some piping had to be replaced before the completion of the contract work.

The present capacity of the treatment plant is 350,000 gallons per day with provision of an ultimate production of 433,000 gpd. Further production from this plant would result in the hardness content increasing over the critical figure of five grains, which would create inoperative conditions.

Conservation of water is related to the problems of campus water supply and the present inadequate planning of facilities results in inefficient uses of water consuming plant and fixtures. One example of such inefficiency is the operation of fish tanks which presently use and dispose of some 18,000 gallons of treated water per day.

The Campus and its environs are served by a fire protection system which includes hydrants placed throughout the Campus, a 1,000 gpm fire pump, emergency access to water stored in the elevated tank and the use of one well connected directly into the system.

Storm Sewers. The axis of the drumlin cuts the main Campus into two drainage areas. Storm sewers are carried in the two north-south depressions which cross the Campus and storm water is eventually discharged into the river.

The more easterly of these two installations has been designed and installed relatively recently and now alleviates a previously overloaded system. It has been designed to accommodate at its upstream end the development of an additional 40 acres within the University property.

The hydraulic characteristics of the sewers comply with the standards of the City of Guelph. Campus sewers adjacent to buildings, roof drains, and in some cases sump pumps, pick up road and surface drainage.

Sanitary Sewers. Sanitary drainage is presently provided for all buildings on Campus and this sewage flows through a complex gravity network of sewers, ranging in size from 4 inch to 12 inch diameter to a 12 inch diameter trunk sewer on Caledonia Street. This pipe carries all of the sewage to a City trunk sewer and ultimately to the City's disposal plant.

With the recent construction of new buildings the present system is now overloaded. To alleviate this situation, a trunk sanitary sewer will be constructed in the vicinity of Power House Lane and will be routed to a point across the river where it can connect to the City system.

Installation of this sewer will permit the division of drainage areas into two natural drainage basins and at the same time relieve the overloaded sewer in the northerly section.

Electric Power. Two transformer stations, one in Guelph of 110 KV rating and one in Kitchener Detwiler of 230 KV capacity, serve the Campus. These supply sources are interconnected, so that back feeding from either one is possible. From the Ontario Hydro transformer station at Guelph, the City, under the jurisdiction of the Board of Light and Heat, is supplied with 13,000 volts while all surrounding rural areas including the Campus are supplied with 27,600 volts.

The Hydro network is subject to continued programming to guard against line loading saturation or low voltage conditions. Should improvements appear to be required, Hydro will not build on speculation, but will undertake a "betterment" programme to include a power cost study and the possibility of enlarging the distribution or changing the phasing.

The Guelph Campus is classified as a subtransmission customer and as such Ontario Hydro service is confined to supply only. Under this arrangement the present load taken from the 27,600 volt supply is 2,494 kw. It is expected that with the two new buildings being commissioned these will require a further 1,000 kw on peak load.

Ontario Hydro's supply is presently a single connection from a double circuit supply. It is their intention to make a second connection to the double circuit supply and thereby feed a further 3,000 kw to the Campus. This total supply of 6,000 kw should adequately satisfy the immediate future requirements.

The Campus sub-station capacity is 3-1,000 kva units and this will be doubled in the spring of 1965 so that the anticipated load of 5,494 kw will be met.

The Campus supply is protected by diesel generator standby units which can produce about two thirds of the Hydro supply.

On the Campus, hydro is used mainly for lighting purposes and power lines are all carried underground to the various buildings at 4,160 volts. In the distribution network there appears to be a line saturation condition in several parts of the Campus and at the OVC Research Station.

Telephone. A comprehensive system of telephone lines presently serves the Campus and environs. These lines are all carried underground. In some instances they are direct buried lines and in others share the same underground tunnel with hydro and steam.

Thirty trunk lines are connected to the main equipment room and switchboard. Six hundred main line extensions provide intercommunications between buildings or departments. Within the various buildings a total of two hundred secondary extensions permit internal communications.

The Bell Telephone Company of Canada intends to add two hundred main line extensions. It is anticipated by Bell Telephone, that these additions will adequately accommodate future needs until October 1966 at which time the present equipment room and exchange will reach its capacity.

Gas. Natural gas is supplied by the Union Gas Company. The regional point of origin is a Gate Station located on Stone Road west of Highway No. 6 into which a 26 inch diameter gas line is fed and metered. From this point a 12 inch diameter line and 10 inch diameter line along College and Edinburgh serve as distribution mains. These feed a 6 inch diameter medium pressure line on Highway No. 6 which in turn feeds 4 inch diameter mains into the Campus.

There is at present an adequate supply of gas to the Campus and it is not anticipated that there will be any supply problems in the foreseeable future.

Heating. All buildings on the Campus are heated by steam or hot water which is also used for the laundry, kitchens and processing, etc. From a central boiler house, steam is conveyed through pipes laid in underground ducts and these lines supply the buildings.

The more remote buildings on the Campus are supplied from the same source, but in these instances converter units utilize hot water rather than steam.

The capacity of the plant is presently utilized to its limit. Three boilers of a total capacity of 1,886 HP are capable of producing 110,000 lbs. of steam per hour with an absolute maximum output of 125,000 lbs. per hour. This maximum can be maintained over the duration of a few hours only with no reserve in case of boiler failure.

Two of these boilers are oil fired consuming 660 gallons of oil per hour and the other is coal fired with a consumption of 2,250 lbs. of coal per hour.

The present building area is 1.8 million square feet which has a steam requirement of approximately 68,000 lbs. per hour, and with process steam has a peak demand of 86,000 lbs. per hour. The present new building programme requires some 12,500 pounds per hour. This total is therefore 98,500 pounds per hour excluding the process steam requirements of the new building.

The 1964-65 annual steam consumption forecast is 295 million pounds and the corresponding fuel estimate is 2.3 million gallons of oil or its coal equivalent.

Conclusions. The present services can handle the immediate requirements, but obviously an expanded Campus will require considerable additions and changes. Since the broad outlines of the Long Range Development Plan have been accepted, detailed engineering plans for services began in the later months.

2.6 Community Development Context

Terms of Reference. Under the terms of reference only a brief review of the possible impact of community and regional development on the Campus is stated.

Of concern to the University and to the various local planning groups is the desirability of a coordinated response to the unusual economic and social opportunities a new University affords. In general the review is limited to an account of the present development pattern, and what the professional agencies believe the future holds.

Because the idea of a fast growing University was unknown at the time when many of the existing planning studies which have been examined were published, it is apparent that the environs are not prepared to meet the University's needs in several critical areas: highway development, housing, utilities, and land development controls.

It is therefore essential that a total and complete review of past plans be undertaken as soon as possible by the various agencies responsible for planning the lands outside of the University's control. This recommendation is not a token espousal of a general principle, but an urgent plea for a review of matters that have deep implications for the development of the University in Guelph, and the community at large.

Regional Setting. The Waterloo-Kitchener complex, Galt and Guelph form a triangle of interrelated urban communities, which is located approximately 55 miles south-west of the centre of Toronto and 30 miles north-west of Hamilton. This complex has been referred to as the "Golden Triangle" and is one of Ontario's fastest growing economic regions.

Analysis of 1961 census data indicates the high employment rate of 42 per cent of the total population as against a provincial average of 38.5 per cent and a national average of 35.5 per cent. Only 4.5 per cent of this labour force were unskilled. The average family income of $5,847 was slightly lower than the provincial average of $5,868, but higher than the national average family income of $5,449.

Only 17,000 or 8.7 per cent of the population are classified as rural. Their production is extremely high. The region is one of the Province's greatest livestock and dairy producing areas, as well as the provincial centre for maple syrup production and fur farming. Although there are few metallic minerals in the area, there is a considerable number of sandpit and limestone quarries. At present, primary industry occupies less than three per cent of the total labour force.

Manufacturing employs approximately 44 per cent of the labour force in some 575 establishments. Production of furniture and fixtures, metal fabrications, foods and beverages employs over 10,000 people and constitutes the bulk of manufacturing product, supplemented by electrical equipment, machinery, leather and textile production. In 1961, the total shipping value of industrial production was $345,000,000.

There are approximately 1,650 retail stores in the region employing almost 9,000 persons. In 1961, sales rose to $205,400,000 indicating the economic strength of the region with production exceeding consumption by $140,000,000.

Population. In a study prepared for the Mid-Western Ontario Development Association, the firm of Dryden & Smith, Planning Consultants, project a doubling of population to 400,000 for the region by 1980, which represents a 5.0 per cent increase per annum as compared with the 3.5 per cent per annum increase for the Province as a whole over the past decade. While the increase over the last decade averaged 4.35 per cent, some 29.0 per cent of this increase was due to migration. This figure can be expected to drop in the next decade. A more conservative estimate on the basis of past provincial growth rates indicates that the region will contain a population approximating some 335,000 by 1980.

The increasing trend towards urbanization may cause a proportional decrease in the labour force employed in primary industry and an increase of employment in service industry.

Regional Circulation. The region is served by routes connecting the major centres of Guelph, Kitchener, Waterloo and Galt, and is bisected by Highway No. 401, the main trans-provincial highway connecting Montreal with Toronto and Windsor. Highway No. 24 links the Lake Simcoe area to south-western Ontario through Guelph, Highway No. 6 links the Georgian Bay Area to Hamilton through Guelph, and Highway No. 7 passes through the City supplementing east-west traffic movements on Highway No. 401.

The CNR and CPR have lines passing through Guelph and bus transportation is available to the surrounding area. The Toronto International Airport is about one hour's driving time from the city.

The Provincial Department of Highways indicates that no major changes or improvements are presently contemplated within the region.

Guelph and Environs. The City of Guelph was founded in 1827, incorporated as a village in 1851, as a town in 1856 and as a city in 1879. It is located at the confluence of the Speed River and its tributary, the Eramosa, with both CPR and CNR lines crossing at the town centre.

Economic Base of Guelph. Guelph's employment structure indicates the solid manufacturing elements of its economic base. One third (32.8 per cent) of the labour force are employed in production processes compared with one quarter (25.8 per cent) of the Province as a whole. Professional and technical employment represents 12.1 per cent compared with the provincial average of 9.9 per cent. Only 2.2 per cent of the labour force were employed in primary industry.

According to data prepared by the Industrial Commissioner in 1963 there were 118 manufacturing firms of diversified types, which included prominent electrical, foundry and textile industries. These paid a total of $35,000,000 in wages and produced $90,500,000 worth of goods. Of these industries 26, or 22 per cent, had located in Guelph during the last decade.

Within the corporate limits are 343 retail outlets employing over 3,300 persons. Family income averaged $5,591 compared with $5,868 in the province and $5,449 for the nation. The pattern of income distribution shows a greater percentage of the population with moderate income and fewer extremes of rich and poor.

Guelph, for example, had 16.1 per cent of its population earning less than $3,000 per annum compared with the national average of 23.2 per cent. It is evident that Guelph's continued expansion on a sound economic base is assured.

Population Characteristics of Guelph. Over two thirds of the population of Guelph (67.3 per cent) are of Anglo-Saxon ancestry as compared with 59.5 per cent of the Province. Other significant ethnic groups are Italian and German who represent respectively 10.5 per cent and 7.4 per cent of the total population versus provincial averages of 4.4 per cent Italian and 6.4 per cent German. In 1961, 43.5 per cent of the population were Roman Catholic with Anglican and United Churches accounting for an additional 40 per cent.

Population Projections for Guelph. Planning studies in 1960 prepared by the firm of Dryden & Smith for the City indicate that while the growth rate over the decade 1951-1961 was 3.9 per cent per annum compared with the provincial rate of 3.0 per cent, the consultants substantiate a projected growth rate of 3.5 per cent per annum over the next two decades.

On this basis the consultants estimate population levels of 45,800 by 1965, 54,500 by 1970, 64,700 by 1975, and 77,000 by 1980. The area to be annexed now includes approximately 3,500, bringing the projected population to a total of 82,000 in 1980. Projections were made before expansion plans for the University were announced.

The University expects to expand to a total student body of 6,000 by 1970 and an ultimate enrolment of 15,000. Assuming the target enrolment will be reached by 1985, projected staff and faculty ratios may create a total university community of approximately 8,000 in 1970 and 25,000 by 1985.

The concomitant increase in town population has been approximated at 23,000 people due to the increase in service, clerical, sales and professional employment and families added by the university growth. The projected total population of Guelph in 1985 could thus reach 125,000.

Major Circulation and Transportation Networks. Almost all traffic in the vicinity of the Campus, and in fact on the entire southern boundary of the City, is channelled through Highway No. 6. The proximity of Silvercreek Parkway, a perimeter arterial street, and its connection to Highway No. 6 affords a convenient and fast route for through traffic, especially truck traffic, to circumvent Guelph.

Edinburgh Road to the west of Highway No. 6 is a major arterial street and supplements the highway directly serving the western side of the City.

Victoria Road, to the east serves the same purpose in that area, but is twice the distance from the Campus centre (1.25 miles) and is convenient to a much smaller population.

Although both of these roads serve to disperse traffic through Guelph, Highway No. 6 remains the most heavily travelled route, since it provides direct access from Hamilton and Highway No. 401 to the Guelph business section as well as a direct route to the recreation areas north of the City.

The only proposed improvement project in the vicinity is the widening of Dundas Road and Highway No. 6, but the timing of this work is subject to the reconstruction of the intersection and subway where Gordon Street, Waterloo Avenue, Norfolk Street and the CNR intersect. This widening project would improve the movement of traffic between the central business area and the Campus.

The Campus is presently served by a bus route of the Guelph Transportation Company providing a public transport link between the City centre and the Campus.

Land Use of Guelph. The overall land use pattern of Guelph indicates distinct growth trends. The original nucleus of the settlement now constitutes the central business area which is well defined both by land use and street pattern. From this centre, located at the crossing of the CNR and CPR railways and the junction of the Speed River and its tributary, the City had expanded concentrically with the major direction of early growth towards the west and somewhat less towards the east.

The inner ring of residential growth contains many large houses which have been converted to duplexes and apartments and have created an area of higher density residential development surrounding the core. Newer subdivision of land to the east and north of the centre have placed it in an eccentric position with regard to population disposition.

This factor, together with congestion, small lot size and lack of parking facilities in the centre have facilitated the location of three suburban shopping centres in the east and north fringes.

Industry has located in three major areas, one on the southern and two on the northern peripheries. Two areas have rail access and their present locations will undoubtedly determine the concentration of future industrial uses.

Housing in Guelph. The housing stock is generally sound. There are no real slums. Of a total of 9,327 units 7,703 or 82.6 per cent are owner occupied. Multiple unit construction increased over the last five years up to 1961, and as evident from the continued conversion of large single units to multiple dwellings the demand for rental multiple units will continue. University expansion will attract the development of multiple rental accommodation in the immediate environs of the University.

Present rates of new housing starts and conversions will not come close to meeting the needs generated by the University expansion. As a result and as noted in the section on University housing, a shelter crisis may be anticipated in the next three to four years.

Community Facilities of Guelph. There are 16 public elementary schools and two high schools in Guelph, as well as seven separate elementary and one separate high school. The five major parks are well distributed, one contains a stadium, another a municipal pool. Plans exist to link these along the river valleys.

There are 37 churches, four libraries, two motion picture theatres, and two private and one public golf course.

Development Controls and Annexation Proceedings. An Official Plan is in draft form, but not yet approved. At present, development is controlled by a zoning by-law which was passed by Council and approved by the Ontario Municipal Board in 1962. The City's planning consultants have been instructed to proceed with investigations for an annexation of lands to the south. It can be assumed that the annexation will include lands on both sides of Highway No. 6 extending west past the University grounds.

Implications of University development on City growth. It is evident from the eccentric location of land uses within the Corporate boundary that development pressures will be felt more strongly in the next two decades in the area to the southeast of the City. Development of the University and concomitant rapid population increase requires adequate proximate rental housing to serve it. This would naturally seek to locate in the immediate environs of the Campus and in particular along Highway No. 6.

The further urbanization of the "Golden Triangle" to the west as well as the connection with the inter-regional Highway No. 401 creates additional forces for expansion to the west and north of the central area.

A considerable portion of the projected population increase, and in particular the population increase in the next five years, will result from University expansion. Development related to the University should be, both for reasons of convenience and communication, as proximate to the University as possible. Any City expansion to the south will create problems of traffic movements between Campus and residential areas.

University Zones of Influence. The majority of student housing is provided in College Hill. This area is approximately 500 acres in extent, partly within the City boundaries, with a resident population of some 4,000 and an additional student population of about 600 during the school term. As many as eight students were noted in one dwelling.

Ninety per cent of the housing consists of single family residences. Twenty-five per cent door-to-door sampling indicated that about 65 per cent of the off Campus students and 58 per cent of the faculty lived in the College Hill area.

Limited commercial facilities are within walking distance of the Campus. These include a drug store, a grocery store and a barber shop, supplemented by two co-operative retail outlets for students on Campus and one immediately off Campus. As a result of these limitations, most student off Campus shopping takes place within the central business district.

In addition, the central area with its shops, restaurants, lounges and cinemas provides a focus for leisure time activity. The Campus on the other hand, especially the hockey rink, is used by the municipality for recreation and buildings are often used for municipal functions and the Campus acts as a meeting place for provincial, national and international functions.

It is evident that the expansion of the University will require the interrelated development of residential, commercial and off Campus recreational facilities to serve its population. This development must be sited with an overall regard to convenience, traffic movements within the environs of the City and the University, feasibility of servicing, and existing land use patterns.

Land Uses in the Environs. The Speed River defines the extent of the southern growth of the City with the exception of the College Hill residential area which, together with a golf course on the north side of Highway No. 6, separates the University Campus and holdings from the townsite. South of the University, recent development has located in ribbon form for several miles. The most significant development in this area is a small subdivision immediately south of the Campus on either side of the highway, two motels and a restaurant.

Traffic between the City centre, Highway No. 401 and points further west, utilizes Highway No. 6, which is also the main link between the Campus and the City centre. This regional traffic severs the Campus, interferes with pedestrian and vehicular traffic movements of the University, and bisects, both physically and visually, the east sector of the Campus from the west.

Services. A portion of the City's trunk sewer is located toward the Speed River approximately one-half mile distant from the Campus. Its capacity and depth are sufficient to drain a catchment area extending in a south-westerly direction as far as the Amber Cupola restaurant on Highway No. 6. Disposal facilities will permit direct and standard sized connections for development proposed in the area of the Campus. In addition topography will readily facilitate the disposal of storm water into the river valley.

Well water is obtained by drilling into the limestone beds. It is of highly calciferous content and extremely hard, but appears to be in abundant supply. A lowering of the water table over the years has encouraged the City to engage in a programme of conservation through spring and well development in the Arkell area south of the City.

Lowering of the water table and subsequent deterioration of Campus water supply could be remedied by supplies pumped from City sources.

The proximity of the Campus to the City suggests that little or no difficulty should be encountered in providing the area of the Campus with all services including gas, electric power and telephone.

Problems and Opportunities. The major physical development problem of the Campus is its bisection by Highway No. 6. A solution must either achieve some continuity of the Campus with grade separation, a diversion, or a gradual staging scheme, which relocates all Campus facilities on one side of the highway. The plan has been based on a road diversion.

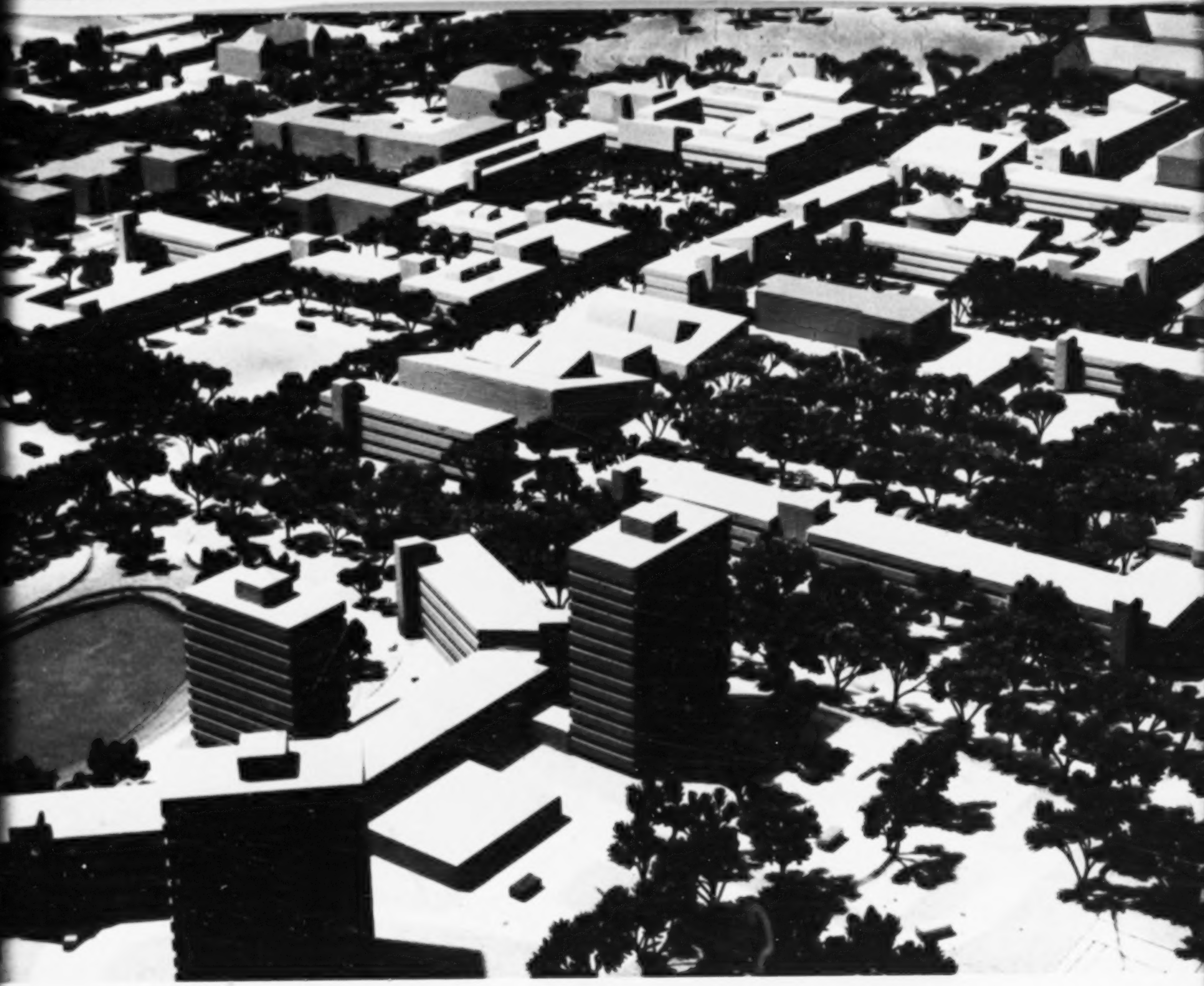
The projected City growth and its necessary connection with the University suggests, that unless permanent and complete road closure following traffic diversion could be achieved, the highway would still remain a major arterial road and continue to bisect the Campus.

It is apparent that the centre of population gravity requires displacement to the west. The existing eccentricity of development, the attraction created by the growth of Kitchener, Waterloo, and Galt, as well as the tie to the regional highway all emphasize this fact. Above all, the projected growth of a population of 10,000 persons related to the University and Campus functions in the next five year period makes population growth in any other area unreasonable. Difficult traffic movements would be created and population inconveniently located with regard to both Campus and the City facilities students use within the central area.

In the eventual development pattern, the reformatory, golf course, and University lands should form an extensive area of open spaces, which penetrate in a wedge-like form, from the open countryside on the east, to the heart of the City. Future University expansion should be towards the north-east and east while the townsite developments on the southward side of Highway No. 6 should expand generally towards the southwest.

The subsequent urbanization should follow a comprehensive master plan which relates future growth to the existing overall urban pattern and the proposals made for the University.

The preliminary assessment of the interaction of regional, local and University development suggests that, as their growth is interdependent, it must be jointly and comprehensively planned. The development of the University affords an excellent opportunity to rectify the imbalance of land use in Guelph and to provide at the same time a planned environment which is sympathetic, as well as necessary, to the University's expansion.



Model view from southeast across proposed Student Residential Complex to Library and central hub of the University with Main Campus Open Space and existing War Memorial Hall in distance

SECTION 3
THE DEVELOPMENT PROGRAMME

3.1 Proposed University Organization

The organization of the University is still under study, especially the timing of the transition of general education and service courses from one academic unit to another. The broad outlines however are quite clear and are sufficiently determined for the purpose of the Plan.

Bill 133 — The University of Guelph Act, 1964 — states, that the objects of the University are to advance learning and the dissemination of knowledge, the intellectual, social, moral and physical development of its members and the betterment of society.

The law entrusts the matters of educational policy to the University Senate, subject to the approval of the Board in so far as expenditures of funds and establishment of facilities are concerned.

The Senate has power to control, regulate and determine educational policy, determine courses of study and standards of admissions, conduct examinations, deal with matters relating to academic awards and prizes, and confer degrees.

The Board of Governors conducts, manages, and controls the University and its revenues, expenditures, property, business and affairs. It appoints the President, who serves as chief administrative officer. He also is a member of the Senate.

Major academic units of the University as presently conceived are:

1. OAC — giving degree courses in Agriculture and Agricultural Engineering and technical and vocational course programmes.
2. OVC — giving degree courses in Veterinary Medicine.
3. MI — giving degree courses in Household Sciences.
4. WLC — giving degree courses in the Arts and Sciences.

These four major academic units will be supported by a central administration.

3.2 Campus Population

Summary of Significant Characteristics. Data from various sources have been compiled and organized to indicate the demographic characteristics of the Campus population in 1964, stated in Tables 3.1 and 3.2. The tabular summaries in this section also trace the growth over the last decade.

The following is the profile of the Campus population in the fall of 1963.

1,769 Full time students
  1,068 OAC
  326 MI
  375 OVC
312 Full time faculty
  219 OAC
  20 MI
  73 OVC
76 Other professional staff
  43 Administration
  26 Research Personnel
  7 Library
602 Supporting Staff
Faculty to student ratios*

- Faculty to supporting staff for the University was 1:2
- Faculty to student ratio at OAC was 1:5.9
- Faculty to student ratio at MI was 1:8.0
- Faculty to student ratio at OVC was 1:4.3
- Faculty to supporting staff for the University was 1:2
- Each student was "served" by .56 other people

Data were not in a form that indicated the full time equivalents for personnel assigned to more than one function, for example, research and teaching. Historic growth was difficult to analyze because of several changes in methods of keeping records and variations in administrative organization over the last five years.

From general observation of campus populations at other universities however, it appears that the total faculty to student ratio is low for an institution which does not yet have a Ph.D. programme.

For example, McMaster University with a strong Ph.D. programme has a faculty to student ratio of 1:11, and it would be expected that the ratio at the University of Guelph would be higher. OAC's faculty to student ratio is actually lower and probably results from the broad curriculum (18 departments) and the excellent support the Provincial Government has given to agricultural education and research. OVC's faculty to student ratio is also lower than expected, while Macdonald Institute's ratio is closer to a normative standard.

The faculty to supporting staff ratio of 1:2 reflects the special agricultural programme at Guelph, as is especially evident when it is compared to McMaster University, which has a heavy commitment to research in the physical sciences, and a ratio of 1 faculty to 1.6 supporting staff.

The figures and ratios mentioned however, are not used as a base for projecting future University Campus population. For this reason, a more detailed analysis of the present situation is not necessary.

Projected Campus Population. To give an approximation of the amount and character of facilities required at each of the planning periods the Campus population has been broken into six population groups. Since there is no basic data available at the University for projecting the number of people in each group various forecasting methods have been employed which seem reasonable at this time. These methods were applied in consultation with the administration and faculties involved. In comparing the totals with existing universities of the same population size as that anticipated for Guelph in the future they give results sufficient for Campus planning.

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*Figures adjusted to account for service courses taught by OAC.

The total Campus population at each of the planning periods would be:

6,000 student plan — 7,646 people
10,000 student plan — 12,263 people
15,000 student plan — 17,839 people

People include: students, faculty, administration, library, supporting staff and research personnel (See Table 3.3).

The matter of year-round operation does not affect the above figures since they represent the peak population when there are 6,000 students on Campus. The University believes that the 6,000 student mark will be reached in 1970 and the Plan is arranged accordingly.

Detailed projections of student enrolments by academic units, degree courses and level of education were published in the Programme Report of September 1964.

TABLE 3.1
CAMPUS POPULATION 1954-1963[1]—ALL UNITS

	Full-time Students	Full-time Faculty	Admin.	Research Staff	Library Staff[2]	Supporting Staff[3]	Total
1954-1955	1045	269	44	8	8	365	1739
1955-1956	1071	263	43	12	7	376	1772
1956-1957	1105	255	42	14	8	409	1833
1957-1958	1131	264	40	14	8	467	1934
1958-1959	1251	277	42	17	7	523	2117
1959-1960	1317	291	42	25	7	571	2253
1960-1961	1460	289	43	25	7	641	2465
1961-1962	1583	283	45	25	8	640	2584
1962-1963	1658	294	47	37	7	622	2665
1963-1964	1769	312	43	26	7	602	2759

[1] As of 1 October of school year indicated in left-hand column.
[2] As of 1 January of school year indicated in left-hand column.
[3] Massey and OVC Library staffs only.

Sources: Annual Reports, College Bulletins, Office of the Payroll Department.

TABLE 3.2
TOTAL STUDENT POPULATION CHARACTERISTICS—JUNE 1964

	OAC	OVC	MI	Total
Male	972	329	—	1301
Female	33	32	291	356
Graduate	107	13	—	120
Undergraduate	898	348	291	1537
Married	94	53	6	153
Single	911	308	285	1504
On-Campus Residence	434	79	191	704
Off-Campus Residence	581	283	100	964

Source: Office of Director of Accommodations and Registrar's Office.

TABLE 3.3
PROJECTED CAMPUS POPULATION

	6,000 Plan Head Count	10,000 Plan Head Count	15,000 Plan Head Count
STUDENTS			
OAC (Degree)	1,000	1,200	1,600
OVC (Degree)	450	475	500
MI (Degree)	400	450	500
WLC (Degree)	4,150	7,875	12,400
OAC (Diploma)	400	400	400
TOTALS	6,400[a]	10,400[a]	15,400[a]
FACULTY			
OAC	220	250	300
OVC	76	100	100
MI	25	27	33
WLC	265	573	899
TOTALS	586[b]	950[b]	1,332[b]
ADMINISTRATION	72[c]	105[d]	133[e]
LIBRARY	21[f]	34[f]	51[f]
SUPPORTING AND OTHER STAFF			
OAC	220	250	300
OVC	168	220	220
MI	5	5	6
WLC	67	134	184
University	72[g]	105[g]	133[g]
TOTALS	532[h]	714[h]	843[h]
RESEARCH PERSONNEL	40[i]	60[i]	80[i]
TOTALS	7,651	12,263	17,839

Key:

a. Based on Department estimates.
b. Based on Department estimates, except MI, which was prorated.
c. Based on ratio of 1 administrative officer per 8 faculty.
d. Based on ratio of 1 administrative officer per 9 faculty.
e. Based on ratio of 1 administrative officer per 10 faculty.
f. Based on 1 library staff per 300 students.
g. Based on Department estimates, except MI, which was prorated.
h. Based on slowly rising research activities at 1960 to 1964 rate.
i. Based on 1 supporting staff per administrative officer.

3.3 The OVC Programme

OVC Background. A detailed accounting of the educational and research needs for all academic units was given in the September 1964 Report. The material in the sections below touch on the highlights, so as to give a perspective on the development programme requirements.

The Ontario Veterinary College was established by private charter at Toronto in 1862. It was the first of the accredited veterinary colleges still operating in North America. Until 1908, the College granted the diploma of Veterinary Surgeon. The charter was then acquired by the Province of Ontario and with the addition of a year's study the graduates received the degree of Bachelor of Veterinary Science from the University of Toronto.

By 1922, having outgrown their facilities at Toronto, the College was moved to the Guelph Campus. By 1946, the degree given to graduates was changed to Doctor of Veterinary Medicine and in 1949 the degree programme was lengthened to five years.

The formal relationship among the Province of Ontario, the University of Toronto and the Ontario Veterinary College remained essentially the same from 1908 until 1962. The College was a Provincial government institution under the administration of the Department of Agriculture and funded by it. The University of Toronto acted as the degree-granting body and exercised considerable academic control over the College.

In 1962, the Ontario Legislature passed legislation which established the Federated Colleges. The three colleges at Guelph thus became a single unit, responsible for administrative purposes to the Minister of Agriculture through a Board of Regents. The affiliation with the University of Toronto continued and OVC remained academically independent of OAC and Macdonald Institute.

In July 1964, by act of the Ontario Legislature, the University of Guelph was established. The legislation provides that the University be an independent corporate body encompassing the three existing colleges. Administrative responsibility is vested in a Board of Governors. A Senate was established, whose members from the administration and the faculty are to have responsibility for the educational policies of the University, including the granting of degrees.

Thus in 1964, the Ontario Veterinary College was an institution *pari intra pares* with OAC and Macdonald Institute.

Enrolment considerations. The size of the enrolment at OVC is limited by the amount of the clinical material, which consists of the animals which are brought to the College for diagnosis and treatment. There are definite limits to the number and type of sick animals which are available for the students to observe being treated. It is generally considered that OVC has reached that limit now.

In the last ten years enrolments have grown by 22 per cent. Last year's total of 375 students was the largest in modern times, although OVC had close to 500 students at the turn of the century.

With a freshmen class of 79 in 1963-64, OVC is close to the maximum enrolment it can handle. First year enrolments at Guelph are much larger than at many veterinary schools elsewhere. For example, in Great Britain there are six schools which take in about 30 students each.

Until three years ago, OVC managed to accept all qualified students who applied. Since then, the enrolment has had to be restricted. Next year, further restrictions wil be placed on enrolments and only Canadians will be accepted, but it is anticipated that this will not be a continuing policy.

It is felt that the acceptance of foreign students is not only a responsibility of the College, but is in and of itself a desirable policy in order to avoid parochialism. However, a yearly intake of 60 appears to be the optimum number.

Michigan State University is about to embark on a new admissions policy, which is pertinent to OVC's future growth. Beginning in the fall of 1965, Michigan State will take in a class of 50 students twice a year. This will enable them to utilize the available clinical facilities for a larger number of students.

While such an arrangement would require a larger staff at OVC, it would not require a significant amount of additional instructional space.

Any increase in students is expected to be mainly in the graduate programme. The basic character of the undergraduate body will change, but the number will remain fairly constant at 400. Instead of a five year course with eighty students in each year, the undergraduate course will be four years with probably one hundred students in each year. The present first year will be regarded as pre-professional and will be taught in another faculty on Campus.

The change in the undergraduate programme may include duplication of the teaching programme, so that students will be accepted into the course twice, or possibly three times, per year. The number of faculty may thus increase to allow this arrangement and to handle the increased number of graduate students. Only a slight increase in non-professional staff is forecast to meet the revised programme.

Unless some arrangements are made at OVC similar to those at Michigan State, it is unlikely that enrolments, at least at the undergraduate level, will increase very much in the foreseeable future. The existence of another veterinary school in Canada will take some of the pressure off OVC now, and large increases in enrolments are not anticipated for the future. See Table 3.4.

Academic and research activities. The academic programme for 1964-65 for OVC undergraduates consists of 44 courses and clinics offered by seven departments. Expected changes are shown in Table 3.4.

There has been and will undoubtedly continue to be increasing interest in research among

TABLE 3.4

PROJECTED EDUCATIONAL AND ENROLMENT TRENDS — OVC

Planning Period	6,000 student plan	10,000 student plan	15,000 student plan
Enrolments	450	475	500
Depts.	Anatomy	Anatomy	Anatomy
	Avian Pathology & Wildlife Diseases	Avian Medicine	Avian Medicine
	Clinical Studies	Clinical Studies	Clinical Studies
	Pathology	Pathology	Pathology
	Physiological Sciences	Physiological Sciences	Physiological Sciences
	Veterinary Bacteriology	Veterinary Bacteriology	Veterinary Bacteriology
		Zoonoses	Zoonoses

Source: Consultation with Department Heads and Dean.

veterinarians. Presently two agencies carry on active programmes of research in the veterinary science in Canada: the Federal Department of Agriculture and OVC. As late as 1945, however, relatively little research was done at OVC, or at other similar institutions. Since then, the staff at OVC has stressed the importance of research increasingly. The volume is at the point where it is beginning to outgrow the available facilities.

The following list is a summary of the areas in which research was carried on at OVC during the period 1962-63, the last period for which there is available data.

Area of research	Number of projects
Anatomy	8
Medicine and Surgery	8
Parasitology	4
Pathology and Bacteriology	27
Physiological Sciences	22
Total	69

Extension and other services. In addition to the research carried on at OVC, the College provides a variety of laboratory services for the community:

Animal Reproduction (bovine semen freezing and diagnostic service)
Specific Pathogen Free Pig Programme
Parasite Control
Virology Laboratory
Mastitis Laboratory
Diagnostic Bacteriology Laboratory
Cattle Blood Typing Laboratory
Veterinary Hygiene and Public Health Laboratory
Postmortem Service
Clinical Pathology
Poultry Pathology Diagnostic Laboratory
Diagnostic Laboratory for Diseases of Fur-bearing Animals
Electron Microscope Laboratory
Toxicological Laboratory

The above services are provided for all the agricultural industry in Ontario and are funded as part of the appropriation from the Provincial government. In addition extension services are provided, which are accounted for in the same budget. These include the provision of consulting advice and the running of short courses for various groups of people employed in the agricultural industry. These services account for approximately 20 per cent of the total College budget.

Graduate Studies. Graduate studies are an integral part of the research programme in any university. Graduate students provide a necessary and large part of the manpower for research projects.

OVC offers two graduate degrees, the Master of Veterinary Science and the Doctor of Veterinary Science. From 1930, when the degree of M.V.Sc. was first offered, until 1955, only three degrees were granted. In April 1955, however, legislation was passed which made it possible for students to perform all the work towards this degree at Guelph. Since that time, 30 degrees have been granted, through 1962.

Of the 30 M.V.Sc. graduates mentioned above, 13 went on to further graduate education. Only one found it possible to pursue the Ph.D. degree in Canada. This constitutes one of the bases for the very strong desire on the part of OVC to offer the Ph.D. degree. It is felt that if the graduate students are forced to leave Canada in order to receive the Ph.D. degree, they are very likely never to return.

The D.V.Sc. degree is intended as a mark of proficiency in original investigation. Candidates must have graduated in Veterinary Medicine at least three years before registration for the degree and must spend one year in residence.

They are required to prepare and submit a thesis constituting a significant contribution to scientific knowledge. Six of these degrees were granted between 1955 and 1962.

Graduate studies, and consequently research, have been hampered at OVC because of the lack of a Ph.D. programme. Generally speaking, it is easier to recruit good graduate students if they do not have to go elsewhere after the Master's degree to complete the Ph.D.

Now that the University of Guelph has full control over the degrees granted, a Ph.D. will soon be offered by the Veterinary College. It is hoped that the number of graduate students will increase to between 60 and 75 by 1970.

At present, while graduate students are used as research assistants at OVC, they do not help teach. It is anticipated that a Ph.D. programme will provide sufficient numbers of qualified students so that teaching opportunities can be created. This would reduce the teaching load of the existing staff and provide opportunities for teaching experience and financial support for the graduate students. The physical plant requirements for meeting these objectives are shown in Table 4.1.

3.4 The OAC Programme

Background. OAC is the largest agricultural college in Canada. Founded in 1874 by the Province of Ontario as the School of Agriculture at Guelph, the present name dates from the 1880 Act of Incorporation. The College was administratively responsible to the Minister of Agriculture of the Province of Ontario. Academically, the College was affiliated with the University of Toronto through which degrees were conferred. With university status, OAC becomes one of the academic units within the University.

Educational objectives. OAC's educational, extension and research activities are dedicated to the advancement of the agricultural industry and the rural communities. By maintaining an integrated programme, it can respond to the changing needs of the groups it serves. The modifications of the objectives of the diploma course in recent years is a good example of this adjustment.

The number of farms in Ontario has been decreasing markedly in recent years. Parallel to this decrease in number has been an increase in the size of the individual farm. Size, combined with changes in technology, have made it important that the individual operator be a well-trained specialist. In addition, the size of the investment necessary to begin a new farm, or purchase an existing one, has risen so rapidly as to reduce the number of OAC graduates who return to farming after graduation. Thus, it is predicted that the future farm operator will be typically a manager, rather than an owner. It is the training of these managers that OAC sees as the primary purpose of the diploma programme.

As farms have become larger, there has been a parallel growth in other parts of the agricultural industry such as chemical processing, food processing and marketing and agricultural equipment. These enterprises require a variety of skilled graduates. Graduates of the degree programme are to be found in all the agricultural enterprises as well as various government agencies, while graduate students are increasingly demanded for research positions.

OAC operates as a service institution for the rest of the University. All courses for OVC freshmen except zoology are offered through OAC, while 50 per cent of the courses taken by the students of Macdonald Institute are given by OAC. Thus, for some time OAC has provided the liberal arts and sciences courses for the three colleges.

It is for this reason that OAC will perhaps be affected most by the changes in the next few years. With the establishment of Wellington College, many of the non-agricultural courses now offered by OAC will in time be offered by Wellington College.

The enrolments at OAC have doubled since 1954. It is anticipated that the enrolment at OAC will drop in the next few years from the current 1,068 to about 500 or 600 students, depending on how quickly Wellington College is completely established and to what extent it takes over the responsibilities for courses now offered by OAC.

It is believed that the drop in enrolment will be temporary and that the enrolment in OAC will increase to 1200 students by 1970. A number of factors are seen as encouraging this expansion. A strong arts and science college ancillary to the agricultural programme will provide both an attraction and an improvement of the existing programme. Furthermore, it is anticipated that the Department of Agriculture may provide tuition subsidies for agricultural students. It is hoped, that this will attract students from urban areas as well as those from rural communities with low cash incomes.

In sum, the administration of OAC has expressed its comfort, if not its satisfaction, with the prospects for the future. It is recognized that the efforts of the University in the immediate future will of necessity be directed towards the firm establishment of a strong Wellington College. With the transfer of non-agricultural functions from OAC to other parts of the University, the former will be able to concentrate more completely upon what it considers its true role and responsibility. Thus, the future role of OAC will be in the provision of a series of specialized research, service, and educational functions to the agricultural community.

Graduate Studies. A Master of Science in Agriculture degree has been offered at OAC since 1926, in which time 441 degrees have been awarded. In spite of the lack of a Ph.D. programme, this total is larger than any other agricultural institution in Canada.

Of the 75 who graduated with the M.S.A degree in the two years 1961 and 1962, 23 went on to pursue the Ph.D. We have noted that the lack of a Ph.D. degree was considered a detriment to the graduate and research programmes at OVC. OAC also believes that a Ph.D. programme would enhance both the quality and the quantity of its programmes, and further its reputation as an agricultural institution.

If the administrative details can be worked out in time, it is hoped to begin the Ph.D. programme in the fall of 1964 with perhaps six students. Crop science, microbiology, poultry science and nutrition are all areas which presently have sufficient staff and other necessary resources to support a Ph.D. programme. It should be noted that OAC has long had these resources in larger amounts than other institutions which have offered the Ph.D. degree. Based on the output of these other institutions, it is anticipated that within ten years the number of Ph.D. candidates enrolled could number between 40 and 50 at OAC.

Research, Extension and other services. Research and extension have long been a major area of interest and importance to the Ontario Agricultural College. Their importance is indicated by the fact that in 1964-65 it is estimated that 60 per cent of the total operating budget of OAC will be for these activities, the remaining 40 per cent to be allocated for the educational function.

Scientific publications written by members of the OAC staff and other researchers of the Department of Agriculture numbered 191. In addition 164 extension releases were issued.

The funds received by OAC for research from the Department of Agriculture represent by far the largest proportion of the total research budget of that agency. The data below indicates the research funds budgeted by the Department of Agriculture, Province of Ontario for 1964-65, for the four research centres.

Guelph	$5,467,000	83%
Vineland	527,000	8%
Ridgetown	322,000	5%
Kemptville	291,000	4%
Total	$6,607,000	100%

The change in status from the Federated Colleges to the University of Guelph is not expected to have any effect on the amount of research supported by the Department of Agriculture. It is expected, however, that because the relationship between Guelph and the Department will be somewhat less direct, the Department may find it necessary to establish more formal controls over research and other funds. This change has already begun to some extent with the establishment of the Agricultural Research Institute, which maintains a liaison office on the Guelph Campus.

Departmental estimates. An OAC estimate of students, faculty and service population is shown in Table 3.5.

OAC expects enrolments to fluctuate as Wellington College takes over certain arts and science departments now administered by OAC. The enrolments should total 1,000 students by 1970 (6,000 student planning period), and reach their maximum shortly thereafter. A considerable increase in diploma course enrolments is expected. Faculty to student ratios should remain fairly constant in the years ahead, with graduate students carrying an important part of the teaching load. Service staff will be added in proportion to faculty, at a one to one ratio.

Facility requirements. With stabilizing enrolments and the possibility of higher utilization of existing facilities, the development programme (see Table 4.1) for OAC is largely centered on adding key facilities for research and teaching in existing programmes, the replacement of structures which are obsolete, and the relocation of structures which are in the way of expansion of the Central Campus. The latter are largely barns and sheds.

TABLE 3.5

ENROLMENT PROJECTIONS—OAC

Planning Periods	1964	6,000	10,000	15,000
Students				
Undergraduate	740	800	800	800
Graduate	110	200	400	400
Diploma	200	400	400	800
Total	1,050	1,400	1,600	2,000
Faculty	221	—	—	300
Supporting	220	—	—	300

3.5 The Macdonald Institute Programme

Background. The Institute was founded in 1903 to provide educational opportunities for young women and particularly to provide training in homemaking. Mrs. Adelaide Hoodless, dedicated to furthering opportunities for women in Ontario, interested Sir William Macdonald in the project. It was Sir William's financial support which enabled the Province of Ontario to open the Institute as the home economics division of OAC.

In the early years, the Institute provided services for OAC, including manual training and nature study, in addition to one and two year diploma courses for women. After 1921, however, MI concerned itself completely with the home economic programmes. The diploma courses continued as the principal part of MI's programme until 1948 when legislation was passed allowing for the provision of a four year degree programme, to replace the two year diploma course. In 1952, the first degrees of Bachelor of Household Science were granted by the University of Toronto. The one year diploma programme was discontinued at the end of the 1962-63 session, to allow expansion in the four year degree programmes.

Like OAC and OVC, the Institute was administratively responsible to the Minister of Agriculture of the Province. Ultimate academic responsibility lay in the affiliation with the University of Toronto. With University status, the Institute joins OAC and OVC as an equal partner in the University of Guelph.

Enrolments. The number of students has increased by approximately 76 per cent since 1954, in spite of the discontinuation of the diploma programmes. Indications of the pressure upon enrolments are indicated by the fact that last year's freshman class of 110 resulted from applications of 240. Many of these other applicants would have been accepted had the physical facilities and other resources been available.

Projections of future enrolments, based on the premise that a major programme for home economics and related subjects at the University of Guelph will remain as they are now, suggest a maximum of 500 students by the 6,000 students enrolment. These figures do not, however, take the establishment of Wellington College into consideration, and the total enrolment plan is being reviewed.

Educational programme. Macdonald Institute offers the degree of Bachelor of Household Science on satisfactory completion of a four year programme. The programme seeks to teach the art and science of homemaking, within a general education curriculum common for all students through the first three years. In third year the students are allowed to select a number of electives.

The programme divides itself approximately as follows: 40 per cent science courses; 30 per cent home economics, and 30 per cent social sciences and humanities. About 50 per cent of the course work is taught by OAC.

In their fourth year, the students have a choice of three programmes: food administration, clothing and textiles and home management. In recent years, an approximately even number of students have enrolled in each of the options.

Graduates of the programme are qualified to act professionally in the fields of foods and dietetics, clothing and textiles, management and equipment, home planning, in promoting home economics education and research in schools and colleges, in extension programmes and in the many communications media. Food and nutrition option graduates may become registered dietitians after a period of internship or experience. Graduates may also become certified to teach home economics in the Ontario public schools.

Among the occupations of graduates of MI in recent years, teaching is the largest field chosen by the graduates (see Table 3.6). The need for qualified teachers of home economics in the public schools of Ontario is great. At present only 65 per cent of those teaching home economics are qualified. The need for trained food service administrators and nutritionists is also great.

Child guidance and development is an area, which has continued to receive increased attention at the Institute. In addition to courses the Institute runs a nursery school on the campus. It is anticipated that these endeavours will increase in scope, especially with the expected increase in social science courses which will be offered at Wellington College. The home and applied arts is another area which is expected to increase in importance in the near future.

Departmental estimates. Enrolment of degree students in home economics at Macdonald Institute is restricted presently to the acceptance of 100 first year students, a number which taxes present accommodations for professional course work, and makes it difficult to house staff and clerical workers adequately. At this time there are 208 applicants for first year degree work. Macdonald's predictions of enrolment, with an average of 9 per cent increase yearly, indicate a college of 500 to 600 degree students between 1970 and 1975 and consequently should be preparing to accept between 140 and 160 first year students. This would mean a doubling of total enrolment over present figures.

A college of such a size, undertaking both undergraduate and graduate studies, would affect general University operation since approximately one-half of the course time of home economics

TABLE 3.6

OCCUPATIONS OF DEGREE COURSE GRADUATES OF MI SINCE 1952

Occupational field	Per cent
Teaching	24
Dietetics and food services	7
Extension services	5
Business	5
Textiles and design	1
Research, further study	2
Homemaking[1]	54
Miscellaneous	2
Total	100
	(n=368)

Source: Report of the Academic Committee

[1] 25 per cent working, mostly teaching.

students is taken in the arts and sciences. Macdonald Institute would also look forward to offering electives for non-home economics majors, both men and women, that would be designed to increase understanding of the application of the arts, sciences, and social sciences in home living, and so increase the possibility of creative home life.

Macdonald Institute conducted a self-study of its building requirements in May 1964. The classrooms were at capacity in terms of number of seats per class meeting. Physical conditions were poor, with ventilation, acoustical and structural problems presenting functional obstacles to effective teaching. Laboratory spaces were being fitted into the existing building at some expense. The age of the building and its basic circulation plan made it difficult to obtain satisfactory solutions for new space through renovation and rehabilitation.

Inadequate physical services, especially water and sewerage, hindered the installation of contemporary laboratory equipment. Operational activities such as shipping and receiving were carried on in the main corridors for lack of space elsewhere, thus adding to the congestion in the building as well as posing fire and traffic hazards. Finally the provisions for cloakrooms, faculty offices, and study rooms were far below acceptable space standards.

To meet its immediate and most urgent needs the Institute recommended that a net increase of 16,000 square feet should be constructed as an addition to the existing facility, with provision for an additional wing later. The report noted that on completion of the above improvement, there would still be need for a college auditorium, library and reading rooms, space for graduate students and research projects, and service areas. The proposal has been held in abeyance awaiting a University-wide review of facility needs.

Graduate studies and research. While there has been no provision for graduate study at the Institute, research has been actively carried out by the staff in spite of a small budget and a lack of facilities. Further efforts have also been hampered by the relatively heavy teaching loads of the staff. The budgets for research have been of the order of six to ten per cent of the total budget in recent years.

The future. The pattern of future development of Macdonald Institute depends to some extent on the development of the rest of the University, and particularly that of Wellington College. A large proportion of the programme at MI is presently taught by OAC and the programme generally has many similarities with the typical arts and science curriculum. Expectations are that the special curricula now given by Macdonald Institute will continue, and that Wellington College and OAC will provide the general education courses for some time to come.

3.6 The Wellington College Programme

Wellington College—Academic plan to 1970. The programme for Wellington College and the procedures used, are described in the Consultants' report of August 1, 1964, *Methodology for Estimating Future Requirements for Instructional Facilities.*

The College will begin by providing most of the arts courses to the entire University. In time, the College will develop into an arts and science faculty providing all instruction in these areas, from the baccalaureate to the doctorate level. With this general goal in mind, and in consultation with University officials, the following factors were considered to establish the order of growth:

—The types of departments and subject areas, that are likely to be established.

—The number of students enrolled in each of the departments at the 6,000, 10,000, 15,000 planning periods.

—The distribution of students (Full Time Equivalent) at each of the levels of education for each of the planning periods:

a. lower division (first two years)
b. upper division (second two years)
c. master's level
d. doctorate level

—The faculty to student ratios and faculty to supporting staff ratios at each of the levels of education and each of the planning periods for each of the subject areas.

The amount of space required to teach an individual student varies according to the level of the student and the subject area. For example, a doctoral candidate needs more facilities and hence space than does a freshman, while a chemistry student requires more space than an English student does. A recognition of these differentials approximates probable long range needs as closely as is required for campus planning.

Wellington College at the 6000 student level. Table 3.7 is a summary of the estimated number of students and faculty at each of the planning periods for each educational level. Allowances have been made for the students at the other units of the University who would be taught arts and science courses in Wellington College. Thus, at the 6000 student level the equivalent of 4430 full time students will be taking courses at Wellington.

Space requirements. Table 3.8 is a summary of an approximation of the number of gross square feet required to serve the various subject areas and enrolments. The requirements reflect space standards typical of a publicly-supported institution. They are based on utilization standards that would allow classrooms to be used 28 hours a week and teaching laboratories 20 hours a week.

These figures are estimated space needs generated by the enrolments and reflect the differentials described earlier *plus* space for faculty and departmental offices, service space and faculty research.

The methodology and detail of these projections are covered more thoroughly in the Technical report of September 1964. The final conclusions reached are shown in Table 4.1.

TABLE 3.7

WELLINGTON COLLEGE—PROJECTED POPULATION

	Planning periods					
	6,000		10,000		15,000	
Level	Students	Faculty	Students	Faculty	Students	Faculty
Lower div.	3,153	211	5,642	376	8,817	590
Upper div.	1,133	75	1,891	126	2,983	194
Master	130	13	507	40	680	55
Ph.D.	14	6	105	31	200	60
Totals	4,430[a]	305[b]	8,145[a]	573	12,680[a]	899

[a] Includes students at OAC, OVC and MI taking courses at Wellington College.

[b] Does not include existing faculty at OAC, OVC and MI now teaching courses that may later be part of the Wellington College curriculum.

Source: Consultants' study.

TABLE 3.8

INSTRUCTIONAL AND RELATED SPACE REQUIRED FOR ASSUMED ENROLMENTS WELLINGTON COLLEGE—6,000 STUDENT PLAN

Department	FTE Students	FTE Faculty	Teach. Assts.	Support. Staff	Gross Square Footage
"A" English Phil. History Languages Sociology Pol. Sci.	2,612	152	40	31	75,000
"B" Geography Economics	400	27	9	5	15,000
"C" Science	974	54	18	21	88,000
"D" Math.	357	27	9	7	13,000
"E" Music Art	87	5	2	3	10,000
Totals	4,430FTE	265*FTE	78FTE	67	201,000 Gross sf

*New faculty (305 FTE with existing faculty).

Source: Consultants' studies.

3.7 Programme for the Library

Estimated requirements. At a time when there is great emphasis on giving students the incentive to teach themselves, the library is, in a unique sense, the largest teaching unit on campus.

Present library facilities are inadequate, and had been for some time. This fact was recognized several years ago, for in 1959 plans were drawn by the Department of Public Works for a new building of approximately 76,000 square feet. The plans were held in abeyance due to the changing status of the Federated Colleges.

In the programme for the University, the library has high priority among the first stage buildings, and only the general dimensions of the library are reviewed in this document sufficient to show an appropriate site in the plan, since detailed planning will be undertaken immediately.

A reasonable size for the library would reflect a combination of the minimum standards for a college library for 12,750 undergraduates as established by the Canadian Library Association (CLA), plus an additional number of volumes for an active research faculty and a graduate student body of 2,250 students.

The ILA standards for a college library call for 50,000 volumes, plus an additional 50 volumes per FTE student over 600 students. Assuming (as above) that 15 per cent of the total enrolment would be graduate students, the undergraduate library should have about 700,000 volumes. Allowing for a research collection of at least 300,000 volumes, a minimum size library for the University of Guelph (15,000 student level) could be one million volumes.

Another aspect of library size is the number of readers to be accommodated at one time. At 40 per cent of the student enrolment this would result in 2,400 seats for a 6,000 student enrolment, a good target figure for a strong arts programme in Wellington College. To help recruit and hold good faculty and graduate students there should be carrel spaces for 300 persons in the first stage construction, and comparable space thereafter.

An original construction increment in the order of 200,000 square feet would be a reasonable size for the first increment, with a two-fold expansion possible. This includes the continued use of the specialized collections in their present faculties.

Site location criteria.

—The site should be central to all instructional facilities.

—The site should be within reasonable walking distance of residential facilities.

—The site should be close to a major Campus road, with adequate parking nearby.

—Vehicular service should be provided directly to one side of the building.

—The pedestrian entrance to the building should be close to the crossroads of the Campus pedestrian traffic.

—The site should be capable of handling a two-fold expansion.

—Site development should reflect the heavy pedestrian traffic anticipated in the vicinity of the building.

3.8 The Housing Programme

Existing conditions. There are two reasons for providing housing on Campus: first, to ensure adequate shelter and second, to enhance and enlarge the opportunities for using the educational facilities on the Campus more fully.

To help articulate a reasonable housing programme for the development plan extensive studies were conducted of existing housing conditions, as reported in the September technical document. These included:

—Analysis of residential space on Campus
—Analysis of residential facilities off Campus
—Identification of key factors, which will affect the University's housing programme

Student housing. In the spring of 1964, 41 per cent of the total University population was housed on Campus (718 students in five buildings).

The facilities vary in size and type of accommodation. The last residential building was constructed in 1931. The oldest dates from 1903 (Macdonald Hall). In terms of contemporary development standards the number of students housed on Campus would normally require about 158,470 square feet of usable space. They now occupy 131,609 square feet of space. Many of the rooms are overcrowded, with several rooms being occupied by 3 or 4 students. Only Macdonald Hall has sufficient communal space, and that is shared by students from other dormitories.

Another problem of recent origin is that many students off Campus use washroom facilities in the campus dormitories because their own accommodations are too minimal. Common rooms are also used for study rooms. This situation will be partially relieved when the new Library and Student Union is opened and new housing is constructed.

About 1,000 students live off Campus, two thirds of whom are no more than a mile away in the College Hill area of Guelph Township. Over 90 per cent of the students live either in the City of Guelph or Guelph Township during the school year. Very few students commute more than six miles.

The distribution of students by college affiliation, level of instruction and demographic characteristics is shown in Table 3.9. The table draws on a special study of student housing conducted by the Director of Accommodations in 1963.

The field inspection of the off Campus housing indicates that the condition of the housing varies in quality from a slum-like situation to that which is adequate. In a broad sense the present picture seems favorable, especially in economic terms. Weekly rent is low.

With such a high concentration of students in the College Hill area, however, the possibilities of urban blight and deterioration of the housing conditions is quite real. Exploitation is minimized because the University itself houses a high percentage of students on Campus. Since there is no adequate way to enforce student housing standards off Campus through local ordinances, the University should continually monitor the conditions of housing in the environs in order to keep in check any blight producing tendencies.

This is particularly important since a possible increased demand for 2,400 off Campus residential spaces is likely to occur by 1970. Much of the demand will seek satisfaction in the College Hill area first. Since the area is fairly well developed, this means that an increase in density may occur. Such an increase could be inimical to the students', the University's and the community's self interests, if not properly controlled.

The following summarizes the general expectations:

The single, male undergraduate. The present Campus population falls predominantly into this category, i.e., about two thirds of the student body. This is the easiest group to house. They require less space than other students, they are willing and capable of commuting long distances, and are more quickly accepted by private landlords than the single, female student. About half the single students now live on Campus, and this trend is likely to continue in the future.

The single, female undergraduate. About twenty-one per cent of the student population falls within this category. Two out of three girls live on Campus. The other third are at a great disadvantage. They are removed from the social life of the Campus and the after-hour educational opportunities, and find their quarters away from Campus minimal. Many live away from Campus because they have no alternative. The percentage housed on Campus is likely to increase in light of the arts curriculum in Wellington College.

The graduate student. About eight per cent of the students belong to this classification. Few, if any, live on Campus. The graduate student tends to be older and removed from the social life of the undergraduate, typically being five to seven years away from the teenage ethos. Generally these students find their accommodations off Campus, though larger Universities encourage a mixing and interchange among graduate students by constructing a graduate student centre. On Campus housing is also used as a means of attracting first-rate graduate students, who want to be close to the libraries, laboratories and educational activities on Campus.

Married students. About ten per cent of the student body are married, i.e., one in three graduate students and one in six undergraduates. Most married students live off Campus. There are no accommodations on Campus, but several married students live without their partners in Campus facilities, because housing could not be obtained elsewhere.

If private enterprise does not meet the rising married student housing demand, the University may have to construct facilities for this group. Many universities have done so in the past. The University of Toronto expects to do so soon in order to attract the best graduate students.

As a group, married students tend to be better students, pose less disciplinary problems, and take excellent advantage of the educational opportunities presented to them. There is also evidence, that lack of good housing for this group can create marital discontent, and poor mental health and family problems — matters of economic and social consequence in terms of public investment in the student's education.

Housing needs for the student population at the 6000 student level. Estimates of housing demand are handicapped because there is not sufficient data on the demographic trends in the college age group in Western Ontario. However, using assumptions based on general trends in North America, the following is a middle ground guess as to the probable needs generated by a university of 6,000 students at Guelph along the lines of the academic planning described earlier.

1. OAC's enrolment is likely to be about 1,100 students, 15 per cent of whom may be graduate students. Half the graduate students will be married and ten per cent of the undergraduates will be married.
2. OVC's enrolment is likely to be 400 students, ten per cent may be graduate students. Half of these will be married and ten per cent of the undergraduates will be married.
3. Macdonald Institute's enrolment might approximate 500 students. Ten per cent will be graduate students, half of whom will be married. Five per cent of the undergraduates will be married.
4. Wellington College will have a student body of 4,000 with three fourths in the arts, one fourth in the sciences. Graduate enrolments may be 600, half of whom will be married. Ten per cent of the undergraduates will be married.
5. Of the 6000 students, 2200 may be female: ten per cent from OAC; five per cent from OVC; 95 per cent from Macdonald Institute, and 40 per cent from Wellington College.

Accepting these assumptions important implications for the University's and the community's long range development can be drawn:

1. The community at large will have to provide housing for 2400 additional students, i.e., one in four households would be housing a student.
2. About eight hundred additional female undergraduates would have to be accommodated in the environs of the Campus.
3. Seven hundred additional married student accommodations would be needed.

The above demands have to be met within the next six years. Present trends show little evidence that the Guelph area will expand at a rate that would provide the necessary accommodations with the desired quality, distance from Campus, and price. The possibilities of large numbers of students living at home and easily commuting in the Guelph area winters will not help the housing market, until Highway No. 6 is relocated and other traffic improvements carried out. These would seem to be several years away.

Complicating the picture is the fact that students who arrive on Campus in the next five years may be forced into third rate off Campus accommodations. Such exploitation is profitable to certain kinds of landlords, and unless strict housing codes are enforced, this kind of housing leads to slum-like conditions. There are no housing codes covering rooming houses and boarding houses in Guelph.

As a general policy it is expected that the University will have to maintain its present percentage of Campus housing, and probably build in advance of need.

It would appear that the University faces a definite shelter crisis. This discussion has only lightly touched on the educational values of Campus housing. This is an issue which deserves attention. There are no institutions of higher learning with academic stature that do not house a considerable portion of their students on Campus. The exceptions are several public universities located in dense urban metropolitan capitals such as Paris, London, Toronto and New York City.

Few alternatives appear to exist for Guelph. The environs will not yield the amount of housing needed to meet the expected population increase. A successful academic programme must use housing to meet the emerging educational goals.

Considering all these factors it would be wise for the University to open an 800 student unit by September 1965 and 400 additional units each year in three years thereafter, so as to house 40% of the students on Campus.

This would add about 2,000 units to the on Campus housing stock which should be sufficient to 1970. By then the private housing market should have responded to the University's needs and a market analysis could be undertaken to assess the impact of such events as new regional roads, and the quality and quantity of new housing being provided off Campus. There will then be sufficient data to evaluate the speed of University growth and the demographic characteristics of the students attracted by its academic programme.

Design criteria. The University must aim for a quality of design commensurate with the anticipated educational objectives of the housing programme and the investment made in initial construction and annual operation. Since Campus housing will be composed of repeating units, special studies should be made of the first buildings so as to establish reasonable room sizes for bedrooms, study areas and communal spaces. The University should draw on the wealth of experience available in North America to establish optimum sizes and dimensions, types of materials, etc. A mock-up of a typical unit should be constructed and tested on Campus. After revisions the University should establish the mock-up as its standard for design and construction. Variety in design should come about by varying the internal arrangement of the units, through site location, site development, and landscape design.

The architectural programme and design for the housing units should also reflect such considerations as:

- —Size of the logical social groupings in each floor, building, etc.
- —Flexibility in design, so that buildings or floors could be used for female students one year and male the next, in the event that the demographic profile of the student body varies in the future from our estimates.
- —The extent to which educational programmes (seminars, language study groups, etc.) should be included in the housing area.
- —The possibility of co-operative units in which students cook their own meals.
- —The arrangement of buildings, so that male and female students can share communal facilities, such as dining halls.

Site location. University housing should be constructed on University land as close to the instructional area as possible. Units should be scattered through the periphery, near the playfields and library facilities, with no one site housing more than 2000 students. Housing areas should also include their own dining hall and kitchen facilities. The capacities of existing kitchens and dining halls can be utilized as part of the new housing construction programme.

TABLE 3.9
STUDENT OFF-CAMPUS HOUSING BY COLLEGE—JUNE 1964

	OAC degree	OAC diploma	Special students	OVC	MI	Total
Undergraduates						
Male	371	80	6	250		707
Female	14		3	20	100	137
Graduates						
Male	99			13		112
Female	8			NA		8

	OAC degree	OAC diploma	Special students	OVC	MI	Total
Undergraduates						
Single	344	76	8	217	94	739
Married	41	4	1	53	6	105
Graduates						
Single	59			13		72
Married	48			NA		48

Source: Offices of the Bursar and Director of Accommodations.

TABLE 3.10
LOCATION OF FACULTY AND STAFF RESIDENCES LISTED AS A PERCENTAGE OF A RANDOM SAMPLE*

Area	Professors, Associate & Assistant Professors		Lecturers, Scientists		Technicians, Clerks, & Foremen		Farmworkers, Labourers	
	No.	%	No.	%	No.	%	No.	%
Guelph	20	30	8	47	40	53	22	56
College Hill**	38	58	6	35	14	18	5	12
Guelph Township	6	9	2	11	15	20	7	17
Acton	1				1			
Arkell							2	5
Eden Mills					1			
Fergus					1			
Morriston					1			
Puslinch							1	
Rockwood					2		2	
Simcoe			1					
TOTAL	65		17		75		39	

*Random sample covered 194 of 957 listings. (20%)

**Bordered approximately by Speed River, Dundas Street, Edinburgh Road, and the College.

Source: Consultants' Study.

Faculty and staff housing. Table 3.10 indicates the location, size, condition and user of on-Campus staff and faculty housing. The total space devoted to this use is approximately 80,000 square feet in 25 buildings. Many of the residents therein are service personnel, providing 24 hour protection and security for animals, buildings, and the Campus as a whole. It is assumed that most of these residences will continue in use or be replaced in kind.

A random example of off Campus locations indicates that most of the faculty and staff live in Guelph and Guelph Township. College Hill is appropriately named, for a significant number of faculty live there.

In examining the future needs of this group we expect that many of the service staff will be drawn from the present labour supply in the Guelph-Kitchener-Waterloo area, and that the communities will meet the demand for housing.

Faculty housing may also be satisfied by the private market. The idea of a University faculty community at the edge of the Campus affords special opportunities for easy communication among the faculty, and faculty and students. Further development of College Hill as a faculty area however, might be limited by the pressures students themselves put on available facilities.

Present plans to construct expensive housing on the Cutten Recreation Fields (golf course) and expansion of the higher price subdivisions along Stone Road might also force faculty to live at a greater distance from Campus.

Increased faculty, especially in the Arts and Sciences, will have a real impact on the local school picture. At least 250 additional faculty can be expected in the next five years, if the 6,000 student enrolment is to be reached. The community should be so advised.

Some schools provide "threshold" housing for junior faculty members, as a means of recruiting young staff. The school provides housing for the first two years, after which the faculty is on its own. "Threshold" housing is usually operated in areas where the housing market is tight. No immediate demand for it exists at the moment, but again it is part of the total housing picture which the University must continually review over the next five years.

3.9 Supporting Facilities

Table 3.11 is a checklist indicating the various facilities reviewed in the planning studies, and the section numbers refer to materials in the programming report of September 1964. The following descriptions cover selected facilities in that report, especially those which are most critical in the development plan.

Extension Services. Prior to the establishment of the Department of Extension Education in 1959, all the extension work of the three Colleges was done by the various departments. The diploma programme in agriculture, now part of Extension, was the responsibility of one man at OAC. In previous years, much of the extension work done in the rural communities of Ontario was the responsibility of the Colleges at Guelph. In recent years, however, the Extension Branch of the Ontario Department of Agriculture has taken over a large number of these functions. These include the administration of the 4-H Club Programme, the provision of information, services and short courses at the local level and generally acting as the Department of Agriculture's representative at the local level.

In spite of the activity of the Extension Branch of the Department of Agriculture, a great deal of extension work continued to be performed by the Colleges. It was to bring these activities together with the diploma programme in agriculture, that the Department of Extension Education was formed. In spite of the creation of this department, centralization of these activities has been slow. As may be seen in Table 3.12 many courses are still offered and administered by the various departments.

In addition to providing short courses, various members of the University community provide consulting advice to the agricultural community on request, and a variety of other scientific facilities such as laboratory analysis are available to the community through the respective departments of the University.

The future activities of the Extension division are being studied with the view of co-ordinating all activities from a single location.

Institutional Services. Institutional services are those day to day activities, which help support the purposes for which the institution was founded, as well as ancillary activities which are attracted to the Campus. The major activities on the Guelph Campus in 1964 are described below.

University Administration. General administrative functions are carried on in four buildings, two of which are specifically designated as offices for OVC and Macdonald Institute. Major University activities are centered in the Administration Building.

Administration Building contains the offices of the President, Registrar, Director of Accommodations, Comptroller, Bursar, etc.

Present University facilities are inadequate in size, location and relationship of rooms to one another. As the University grows, additional administrative staff will be needed and as suggested, provision should be made for new management techniques using data processing machinery. Many of the administrative tasks handled for the University by the Department of Agriculture in Toronto will have to be transferred to the Guelph Campus.

It is expected that about 27,000 square feet of assignable space will be needed for the 6,000 student enrolment. Present space in Bursar Hall and Administration Building totals about 19,000 square feet. At the 10,000 student level about 39,000 square feet will be needed, and at the 15,000 student level about 50,000 square feet.

It is recommended that a 40,000 square feet administration building be constructed before the 6,000 student enrolment is reached. The building should be so designed that extra office space can be used as seminar rooms, faculty office, or as headquarters for the administration of the Extension Services — until needed for University administration. The building should be capable of enlargement by 25 per cent at some future date.

TABLE 3.11
CHECK LIST OF FACILITIES

Type	See sections*
Academic research	IV-A, V-B, V-C, V-D, V-E
Administration, University	IV-D, V-I
Administration, academic units	IV-A, V-B, V-C, V-D, V-E
Amphitheatres, outdoor	None planned
Arboretum	V-C
Arts buildings	IV-E
Buildings, historic	II-C
Bookstore	IV-D, V-I
Book publishing	None planned
Campus presses	None planned
Campus union	V-J
Chapels	IV-H
Dining facilities	IV-F, V-H
Dormitories, see housing	—
Faculty Centre	IV-H, IV-F, V-J
Field spaces	II-A, II-B, IV-A, IV-I V-C, V-H, V-L
Field House	V-H
Football fields	IV-I
Gymnasia	IV-I, V-K
Health facilities	IV-D, V-I
Heating plant	II-E, IV-K, V-I, VI-B
Housing, student	IV-E, V-H, VI-A, V-B, V-C
Housing, faculty	IV-E, V-H, VI-A, VI-B, VI-C
Housing, staff	IV-E, V-H, VI-A, VI-B, V-C
Incinerator	None planned
Instructional facilities	II-C, IV-A, V-A through F
Intercollegiate athletics	IV-I, V-H
Intra-mural sports	IV-I, V-H
Kitchens	II-C, IV-F, V-H, V-J
Laboratories	II-C, IV-A, IV-B, V-A through F
Language Laboratories	V-E
Libraries	II-C, IV-C, V-F
Museums	II-A, IV-C, V-E
Off-Campus housing, see housing	—
Open spaces	II-D
Parking	II-B, V-H, V-I, V-J, V-K, V-L, VI-B
Physical education	II-C, IV-A, IV-I, V-K
Physical plant operations	II-C, IV-D, V-I
Playfields	II-D, IV-I, V-K
Recreation	II-A, IV-H-I, V-J-K
Science facilities	II-C, IV-A-B, V-B-E
Sponsored research	II-C, IV-A-B, V-B through D, V-I
Stadium	II-C, IV-I
Student Unions	IV-H, V-J
Swimming pool	IV-I, V-K
Theatre	V-J
University Auditorium	V-H, V-J

*Consultants' Programming Report, September 1964

TABLE 3.12
EXTENSION EDUCATION AND OTHER SHORT COURSES 1962-63*

Academic unit	Course		Number of students
OVC	Artificial Insemination		22
OVC	Elementary Diagnostic Bacteriology		30
OVC	Laboratory Animal Medicine		12
OAC	Dairy Courses (12)		210
OAC	Horticulture Courses (9)		1,250
OAC	Dept. of Extension Educ. Courses (12)		653
OAC	Miscellaneous Courses:		
	Bankers Course	107	
	Food Industry Management School	465	
	Pest Control Operators Course	175	
	Others	85	832
MI	Nursery School		51
	Total		3,060

Source: Annual Report of the Federated Colleges.
*Later data not available.

The site for the proposed Administration building should be on the periphery of the instructional area, near one of the main entrances to the campus, and with adequate parking nearby.

Space now occupied by University administration in the Administration Building should be converted to an infirmary, or student rooms or communal rooms for residents.

Bursar Hall could be used for faculty offices, special research projects, special study groups, or similar use.

University Health Services. University health services are contained in 2,748 square feet of space, divided between Macdonald Hall and the second floor of the Administration Building. The staff consists of two trained nurses who are available from 8:30 — 11:45 and 3:30 — 5:30 weekdays, and for one hour Saturday morning.

Emergency service is available at other times, but there is no staff doctor. Cases requiring medical attention by an MD are referred elsewhere. Each of the locations on Campus provides a general infirmary service including dispensary, treatment and recovery areas.

Normative standards for University development call for approximately 8,000 square feet of space for health services for an enrolment of 2,000 students. About 20,000 square feet is recommended for an enrolment of 6,000; 29,000 square feet for a 10,000 student enrolment; and 36,000 square feet at the 15,000 student level.

The provision of health service facilities is an area in which University will have to make immediate adjustment to raise the level of its present operation. As an interim measure, and until resources can be obtained for a separate Health Services Building, space vacated on completion of a new Administration Building should be used to triple in size the present accommodation. No detailed study for justifying this programme need has been carried out but this aspect of the development calls for the full attention of the Board.

Provision For Religious Services. Religious services are performed each Sunday in Memorial Hall by the college Chaplain, with an average attendance of 200 students. In addition to these regular services there are a number of very active religious groups on Campus, all of which are governed by and co-ordinated by the University Christian Council. A great number of students attend denominational services at Guelph and belong to religious study groups and clubs on Campus. Six of these groups come under the University Christian Council. They are: Calvinistic Study Group; Canterbury; Lutheran Student Movement; Newman Club; Student Christian Movement and Varsity Christian Fellowship. All of the groups hold their meetings in the headquarters of UCC in Massey Hall, except the Newman Club which has its own quarters at 29 Dundas Road, and the Lutheran Student Movement which meets in St. Pauls Lutheran Church.

The space now used for religious services shows no pressing need for additional space for religious services, since the students are fairly well served by facilities off Campus. Student study and fellowship groups might be accommodated in the Student Centre, if the demand arises. These requirements have low priority in the immediate programme. In the Long Range Plan a site for a non-denominational chapel will be reserved in the major student housing area.

Commercial Services on Campus. The main body of commercial activities on Campus is carried out by student-faculty owned Campus Co-operative. It provides services to students, faculty, and staff through the main store at 21 College Ave., and two stationery and supply shops at OAC and OVC, a small post office in the basement of the Administration Building and a Snack Bar. Membership obligation consists of the payment yearly of a $1 fee, and the lifelong promise to the Co-operative of a minimum loan of $100 for 20 years at 6% interest. This money provides the necessary funds for expansion and operation of the business. Present volume of the store is over $300,000 per year and shows a modest profit.

The post office is operated by the Co-operative as a service function with no profit and some loss because the college cannot legally perform these duties.

The barber shop in the basement of the Administration Building is a private business which also provides some additional services such as the sale of small toiletry items, laundry & dry cleaning services.

It is expected, that services provided by the Campus Co-operative would grow to a million dollar business by the 6,000 student level and twice that by the time the 10,000 student level is reached. It is difficult to judge at this time how the store on College Avenue will grow, and whether or not private enterprise will meet some of the need by constructing commercial facilities near the Campus. In any case, services now provided on Campus will expand, since present space is inadequate. It is recommended that at least 2,500 square feet of space for commercial services be provided in the Student Union, with adequate consideration given to expansion of that space as the need arises after the 6,000 student level.

Other Activities. The University provides sites on Campus to Provincial and private organizations carrying out activities related to the school's programmes of public service and research.

In the years ahead similar organizations will be attracted to the Campus. As a planning principle, it is recommended that sites for this purpose should be kept to the periphery of the University development, in order to allow a large margin for success and expansion, without interference from other University development.

Buildings and Grounds. The facilities for the University maintenance staff are spread through eight different structures, totalling 112,463 square feet of campus building space. About 20% of the space is devoted to office functions, 35% to storage of vehicles and materials, and the remainder to service and shipping functions.

The operations of the maintenance and storage system are now being studied. It is noted that several buildings are of a temporary construction and ill suited to the requirements of an economic maintenance system. Unfortunately all of the buildings are in the heart of the Campus and complicate the traffic patterns, block logical expansion to the east, and present nondescript visual appearance.

The OVC Research Station also has some similar service-type functions in its buildings as it provides its own heat and has its own vehicle storage shed. The total space allocated to these functions is less than 1,000 sq. ft. and thus is not included in detail in this report. Also excluded are the many in-building service areas containing equipment and activities peculiar to that building. These are found in almost every building on Campus, but in total do not account for a very large segment of the building's square footages.

The future development of the entire service area needs detailed engineering study. Some replacement is expected and reorganization will be needed due to the basic inadequacies of the buildings. These replacements should be sited outside the Central Campus area.

Extra-Curricular Events. The student body at the University enjoys a full range of extra-curricular activities with participation coming through departmental, class, college and university wide groups. Basically these groups can be broken down into six different categories:

—Student Governing Bodies.
—University Activities and Groups.
—Athletic Activities.
—Social Activities.
—Departmental Clubs.
—Religious Organizations.

The calendar of extra-curricular events for the year is very full. Formal weekends for the entire College include Homecoming Weekend in the fall, Conversat, Winter Carnival and College Royal in the winter, and Arts Festival in the spring. In addition to these more formal activities there are six dances held for the entire College, a dinner-dance held by each class (17 classes in all), plus two parties, one off and one on Campus, for each class. The Arts Society holds a number of plays and concerts in Memorial Hall each year and films are scheduled throughout the term.

Only five of the organizations have official office space assigned to them, although there is space made available within departmental buildings for most of the activities. The organizations, which do have their own space share the basement of Massey Library and the Physical Education Building. War Memorial Hall has proved adequate to date for the production of theatricals and concerts with seating for over 800 people.

As the University grows larger it will be desirable, and probably necessary, to provide space for the above activities and additional extra-curricular groups, in a Student Union or an equivalent area in a building converted from some other use. This matter is detailed further in the programme for development.

Faculty Organizations and Activities. Faculty organizations to date have been limited to professional organizations linked to the various departmental interests and the University Faculty Association. The latter acts as the formal group for discussion of faculty matters on Campus and as the representative agency for the University faculty on Canada-wide faculty affairs.

The Faculty and Staff Recreational Club promotes a limited social and recreational programme. Most of the Campus population participates in extra-curricular affairs through the community wide clubs and organizations such as the Curling Club, Masonic and Service Clubs, Golf Clubs and Church groups.

As the faculty grows larger and the Campus is operated on a more intensive schedule a definite requirement for a Faculty Centre is anticipated. In addition to serving as a convenience to faculty staying on Campus during the lunch hours, and in being the focus for social and related activities, the Centre also has an important educational objective. As the Campus grows larger, it is desirable for faculty to maintain contact with each other. The Centre would afford the opportunity for intellectual stimulation and help break down parochial interests.

Since a new Library has highest priority in the University's development programme, Massey Hall will be vacated. Massey Hall sensitively converted, would make an excellent Faculty Centre. The large lecture hall could serve for meetings of the Senate. Such a use would preserve an important symbol conveniently located close to the heart of the Campus.

Existing Sports and Recreation. The main programme centres around the Physical Education Building which was built in 1958. Until this time students used the "Old Gymnasium" as the Engineering Annex is now called, as well as a gymnasium in Macdonald Hall. The playing fields are situated mainly around the Physical Education Building and include: a football field, bleachers, cinder track, high jump, broad jump courses, pole vault course, three tennis courts, two horseshoe pits and an archery range. In addition there are three playing fields for soccer, rugger, or football located on the front campus, south of the Administration Building, three softball diamonds located next to Watson Hall and Macdonald Consolidated School.

The Physical Education Building contains a triple gymnasium, outfitted for basketball, volleyball, badminton and other games, a 35′ x 75′ swimming pool, two regulation squash courts for squash and handball, combatives room for wrestling and judo, a rifle range, an ice rink for skating and hockey, a curling rink with two sheets of ice, a gymnastics room with associated equipment, a weight training room, and a general purpose room 30′ x 100′ to be used for shuffleboard, table tennis and fencing. In addition to these facilities there are locker rooms, shower rooms, change rooms and administrative offices in the building.

Four basic programmes are undertaken: the required programme, the intramural programme, the intercollegiate programme and the recreational programme.

This very successful and well rounded programme will continue to expand in the years ahead. An enlarged educational programme in the Arts will attract greater numbers of female students to the Guelph Campus, necessitating a women's gymnasium by the time the 6,000 student level is reached.

A heated field house will be required by the 15,000 student level. Both should be located near the periphery of the main instructional area, and be reasonably close to the recreation fields and student residences.

An additional thirty-five acres should be reserved as a minimum for recreation and sports fields. Some of these should be adjacent to the student residences.

The existing football field and bleachers are likely to be enlarged. There is no evidence at present that a large and permanent stadium is desired.

Fire Protection and Security. Up until 1952 the Colleges depended upon a crew from the Power Plant with five 500 foot hose reels and one 600 foot reel to fight fires on the Campus. Assistance was available from the City of Guelph Fire Department.

In 1952 the OAC Fire Department was formed. A fire hall was built and soon after a pumper truck was purchased. A number of smaller service vehicles were also used until the present emergency van was purchased in 1960.

A central alarm system was installed in 1954 and to date all major buildings except the Dairy, Microbiology and Extension Education Buildings have been fitted with the system. At present the Dairy building alarm system is under construction.

The present Fire Department has a crew of six permanent members (two live on Campus), eight part-time members (workmen on Campus), eight auxiliary members (maintenance men on Campus), and five students (during the academic year).

The present equipment consists of a 1953 pumper truck, a 1960 emergency van, an irrigation pump for emergency use, three auxiliary pumps, a 600 ft. hose reel, approximately five thousand fire extinguishers, hose standpipes in most buildings, a central alarm system, radios and receivers, a telephone alerting system, and the fire hall with two bays and an office.

A Mutual Aid agreement with the City of Guelph exists and the College Fire Department may call on Guelph as well as the Rockwood and Fergus Departments for assistance.

In August 1964 the Fire Department averaged 1.3 calls per day. The majority of these calls were steam or water leaks which actuate the alarm thermostats. The pumper truck is needed about six times a year. The most frequent fire occurrence is at the OVC Research Station due to the highly inflammable chemicals that are used there.

In 1963 the pumper truck was only called on once for fire duty, and the fire losses amounted to $150.

The Underwriters requirements for a College of this nature are: "two pumper trucks, one aerial ladder, and a permanent staff of twenty-four men". In addition to this the present pumper truck should be outfitted with an engine of three times the existing power unit. New bays and additional space for trucks and equipment would also be necessary.

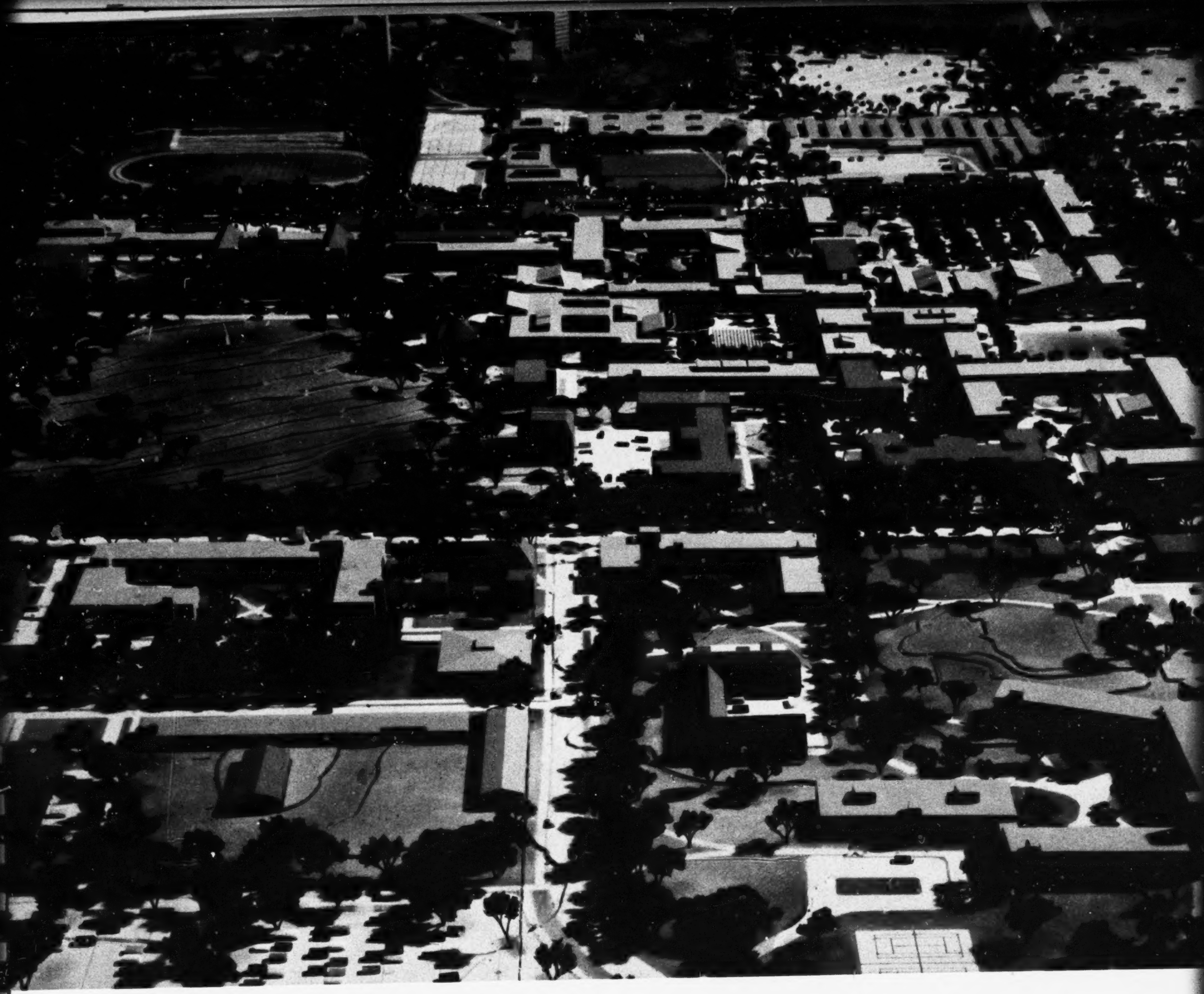
Additional equipment and a new firehall will be needed by the 10,000 student level, and possibly sooner. It is recommended that the existing firehall not be enlarged, but be replaced at the appropriate time with a new facility, whose location should be sited in consideration of the proposed circulation system in the Long Range Development Plan and in accordance with standard fire fighting procedures for a Campus of the size of the new University.

Security Force. The Campus security force is made up of a chief, five men in uniform and three night watchmen. They are responsible for a wide variety of duties on Campus. They must provide 24 hour service for all of the duties listed below:

- —direct traffic circulation and supervise parking;
- —conduct building checks, including nightly inspection of all buildings;
- —keep track of all Campus vehicles, checking them in at night and out in the morning;
- —police all special functions taking place on Campus in absence of regular staff;
- —investigate all accidents and thefts;
- —police all student functions on campus;
- —police the student body.

Operations are carried out by vehicular and foot patrol. Traffic control poses an ever increasing load on the existing force. During peak functions hour, security forces must strongly enforce parking regulations and direct traffic.

Future operations will increase in relative magnitude as the Campus grows. The possibility of a special headquarters for the security forces, perhaps in combination with the fire protection forces should be examined as an administrative matter.



Model view from west over proposed University development with existing MacDonald Institute on the north, proposed Wellington College adjoining Main Campus Hub and existing O.A.C. at centre with existing O.V.C. in left foreground. In top centre, upper right and lower right are proposed Student Residential Complexes

SECTION 4
THE PLAN

4.1 Plan Description

Some qualifications. In the Long Range Development Plan the design concept is a web of opportunity, that allows existing elements and future elements to be woven together into an appropriate design form. The design form reflects an art larger than architecture; an art of anticipation rather than completion, for it must allow adaptation and change, yet remain viable.

Accordingly an appropriate design is that, which establishes a basic land use and building location pattern, places circulation and landscape elements to serve as the skeleton of the design form, and considers in all the important design dimensions the underlying land forms and climate.

In addition the design must sustain the educational purposes of the institution as they are presently known, yet again allow for inevitable change. In the instance of the University of Guelph, the concept must symbolically bring together the various historical units of education and the necessary new elements into a unified Campus design.

Practical matters must be given due weight. All useful existing facilities must be well utilized and significant parts of the Campus cannot be abandoned. Since the Plan will not be implemented at one time, a continuing process of planning will be required during the various phases of implementation.

It is consciously intended that many architects play important roles in designing the many buildings. The planning concepts and policies rather than a style of architecture will serve as the coordinating design element. It is desired that environs of the Campus be carefully guided in their future growth, for there too the basic Campus design will be affected.

The Plan. Section 2 describes the elemental physical planning considerations and Section 3 lays out the programme for future development. The Plan itself is summarized through a series of plates and tables and a set of policy statements. This is followed by a staging plan and an estimated cost of construction.

Plate 1. Regional Development Pattern. This is a diagram arrived at consensually indicating a reasonable solution to the growth in the environs of the Campus. In particular it indicates the possible solution for relocating Highway No. 6, and the opportunities afforded for guiding development in the vicinity of the Campus. The various land uses are conjectural, but do reflect the best advice available as to the directions of growth in the Guelph area.

Plate 2. Campus Environs. From the viewpoint of experience elsewhere, and the capabilities of the vacant land to accommodate new development, a reasonable set of expectations in the environs of the Campus is indicated on this Plate. The Plan is arranged so as to support the University's best use of its own land. In particular, again, the Plan allows for an appropriate solution to the relocation of Highway No. 6.

Downtown Guelph remains as accessible as it is today, and in addition alternate methods for Campus to community access are made available, both at a local and regional level.

Plate 3. Existing Campus Land Uses. Section 2 describes the Campus plan uses in detail and Plate 3 shows the general location of the existing land uses as well as the Campus boundaries. It is to be noted that the southern side of the Campus environs is largely uncommitted, and that the major activities are presently centred in a band of buildings on either side of Highway No. 6.

The Eramosa and Speed Rivers separate the City of Guelph from the Campus. Lying between the two and to the west of Highway No. 6 is the College Hill neighbourhood. East of the Highway is the Cutten Country Club, which others have proposed for private residential development.

Plate 4. Proposed Campus Land Uses. This Plate indicates the recommended pattern of use for land now owned by the University. The Central Campus (built up areas) will serve as the sites for all new building construction. The major Campus loop road is kept to the periphery of this area so that automobile-free precincts can be created, allowing easy movement of vehicles from place to place on Campus, as well as from the Campus to the environs.

Instructional, research and other activities relating to the Land Sciences and Arts will be located to the east of the Central Campus. The Animal Sciences will be located to the west.

Inside the Central Campus the major academic disciplines are grouped around the Campus core. As shown in Plate 3, existing academic facilities are used as the beginning points for the future centres of related subjects and disciplines.

University housing is located at four points of the compass, about equidistant from the Campus centre. Playing fields are situated between the housing and the academic buildings. Large parking areas are held on the periphery.

Plate 5. Campus Development Pattern and Circulation. The plan shows the essential features of the design structure. Using the long range development programme as now known, sites have been selected for all new facilities in accordance with the following criteria:

—All buildings used for scheduled instruction are located within ten minutes' walking distance from each other, in order to create maximum space utilization opportunities.

—Existing and proposed buildings are sited so as to form natural centres of related subject areas. The basic sciences (Physical and Life) are grouped around the Library, as are the Arts. Eastward located are the Land Sciences and Arts, and westward the Animal Sciences. Professional schools and special curriculum schools (OVC and Macdonald Institute) are near the periphery.

—Sites are available for construction beyond the 15,000 student enrolment level. In all cases the sequence for expansion is outwards from the centres so as to maintain an integrated — as opposed to a decentralized—Campus at all times.

—While maintaining the "centres of learning" concept the distinctive characteristics of the various educational units is not lost, since the disciplines are simultaneously grouped as OVC, OAC, Macdonald Institute and Wellington College.

—The Campus core is placed in the centre of the most dense student population. Building locations are selected in anticipation of a phased construction programme. Again, growth is outwards from the centre for University-wide facilities such as the Administration Building, the Library and the Student Union.

—Student housing has been decentralized so that no more than 2,000 units are on any one site. All sites are on the periphery of the Central Campus, close to parking and playing fields.

—The traditional open spaces on Campus have been maintained as part of the design. A new order of open spaces, more urban in character, has been introduced in areas, where heavy Campus population is expected.

—All building locations are selected to afford the opportunity for connecting structures.

—Sites are selected to allow an easy staging of construction, in order to minimize disruption of educational and research activities.

—All building sites have immediate access for vehicular service, including emergencies, but sizeable sections of the Campus are vehicle free.

—Pedestrian circulation paths are designed to expeditiously connect the natural crossroads of the Campus, and at the same time allow a pleasant and safe journey from place to place.

The development pattern reflects considerations of topography, landscape and climate. Sites are selected with the view of encouraging a significant and appropriate regional architecture. The design opportunity envisioned is shown in **Plate 6, The Illustrative Site Plan.**

Plate 7. Staging Plan. The probable order of development is shown in the Staging Plan. The construction of buildings is shown in Table 4.1.

Policies. The policies which have been formulated to guide the long range development are summarized in Section 5. The Programme for Development, the seven Plates and the Policy Statements constitute the Long Range Development Plan.

TABLE 4.1
BUILDINGS IN STAGES

Plan #	STAGE I UP TO 1968
A-1	Housing I for 400 Students
A-2	Arts I
A-3	Library I
A-4	Crop Science — Herbicide Lab.
A-5	Animal Science Nutrition
A-6	Physiological Science
A-7	Physical Science Centre
A-8	Housing for 800 Students
A-9	Agricultural Engineering
A-10	Household Science
	STAGE II UP TO 6,000 STUDENTS
B-1	Housing II
B-2	Student Union I
B-3	Housing III
B-4	Women's Gymnasium
B-5	Housing IV
B-6	Health Services
B-7	Live Stock Pavilions
B-8	Beef Barns
B-9	Administration Building
B-10	Physical Plant Maintenance Complex I
	STAGE III 6,000 TO 10,000 STUDENTS
C-1	Housing V
C-2	Arts II
C-3	Physical & Life Science II
C-4	Library II
C-5	Student Union II
C-6	Creative Arts
C-7	Physical Plant Maintenance Complex II
C-8	Graduate Centre
	STAGE IV 10,000 TO 15,000 STUDENTS
D-1	Health Services II
D-2	Arts III & IV
D-3	Housing VI
D-4	Physical Sciences III
D-5	Women's Gymnasium II
D-6	Replacement & Expansion Horticulture
D-7	Library III
D-8	Replacement and Expansion Apiary Field Husbandry
D-9	Student Union III
D-10	University Auditorium
D-11	University Men's Field House

Roads and Parking Lots: The staging of the road system and parking lots has been established in such a manner that the road network of each stage not only serves the buildings of the stage conveniently but also forms an efficient circulation pattern in keeping with the principle of separation of pedestrians and vehicles. The local service roads will be part of the staging of the site development.

Stage I. Highway No. 6 is to be relocated to by-pass the Campus to the west and the entire inner ring road is to be constructed. Some of the existing roads, including the old Highway No. 6 supplement the system during this stage. Two small parking lots within and four larger ones outside the inner ring road are part of this stage. Two of these large parking lots are located outside the south-west corner of the inner ring road, one west of the existing Veterinary College and one outside the north-east corner of the inner ring road.

Stage II. During this stage the southern and western sections of the outer ring road will be added including the three connector roads in this area and the main southern approach road between inner and outer rings. Also included are the three approach roads to the outer ring road, two from the west, one from the south. One parking lot to the north-east of the inner ring road and one to the west of the existing Veterinary College will be added.

Stage III. This stage adds the eastern part of the outer ring road including the two connector roads in this area, the two eastern approach roads outside the outer ring and the northern main approach to the inner ring. The parking lots to the west of the inner ring will be added.

Stage IV. Stage IV adds the northern section of the outer ring road and two parking lots, one at the south-east and one at the south-west corner of the outer ring.

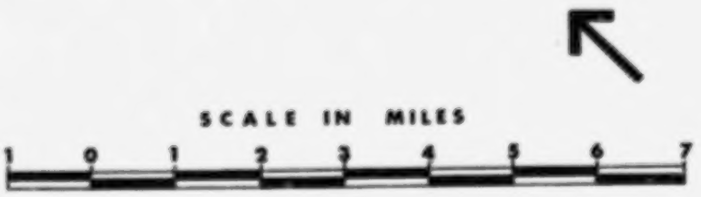
UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

REGIONAL DEVELOPMENT PATTERN

RESIDENTIAL COMMUNITIES	□
COMMERCIAL CORE	■
INDUSTRIAL	■
PUBLIC OPEN SPACE	▨
ARTERIAL ROADS	—
UNIVERSITY OF GUELPH	▨

APRIL 1965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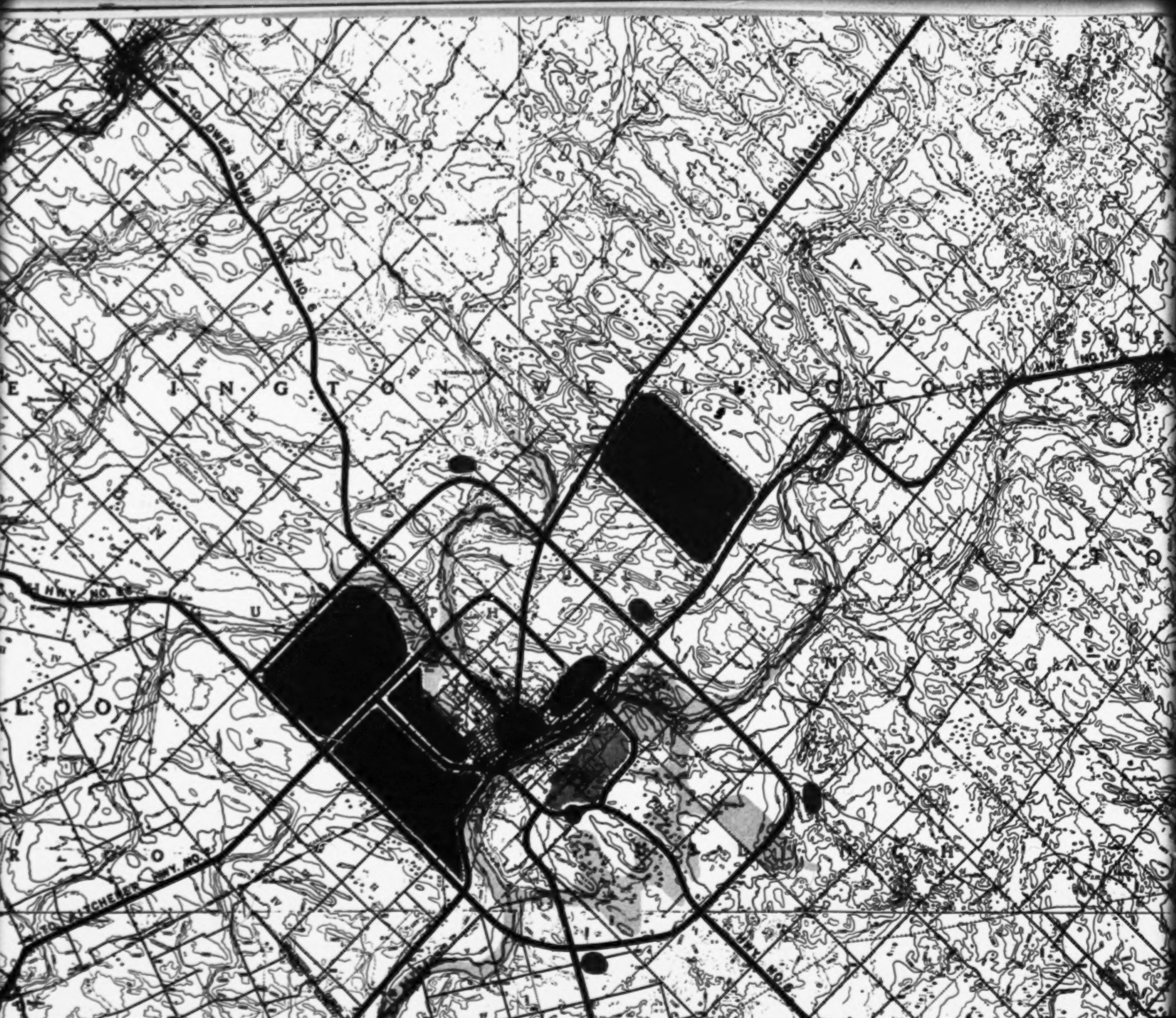
5
6
7

PLATE 1


ERAMOSA
WELLINGTON
WELLINGTON
HALTON
NASSAGAWEYA
PUSLINCH
WATERLOO
TO OWEN SOUND HWY. NO. 6
HWY. NO. 24 TO COLLINGWOOD
HWY. NO. 7
TO KITCHENER HWY. NO. 7
HWY. NO. 6
HWY. NO. 24
HIGHWAY NO. 401
TO TORONTO
TO HAMILTON
GALT

UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

CAMPUS ENVIRONS

RESIDENTIAL	□
MULTIPLE RESIDENTIAL	░
COMMUNITY COMMERCIAL	▓
PUBLIC OPEN SPACE	▒
ARTERIAL ROADS	━
COLLECTOR ROADS	━
UNIVERSITY BOUNDARY	----

APRIL 1965

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SCALE IN MILES
1/4
0
1/4
1/2
5
0
5
10
WALKING SCALE IN MINUTES

PLATE 2

UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

EXISTING CAMPUS LAND USES

BUILT UP AREAS	■
OPEN SPACE RECREATIONAL, WOODED AREAS	▨
PARKING LOTS	☐
FIELD & RESEARCH CROPS, ORCHARDS	░
ANIMAL HOLDING & PASTURE AREAS	☐
UNIVERSITY BOUNDARY	----

APRIL 1965

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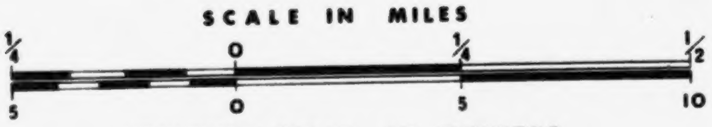
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5
10
WALKING SCALE IN MINUTES

PLATE 3

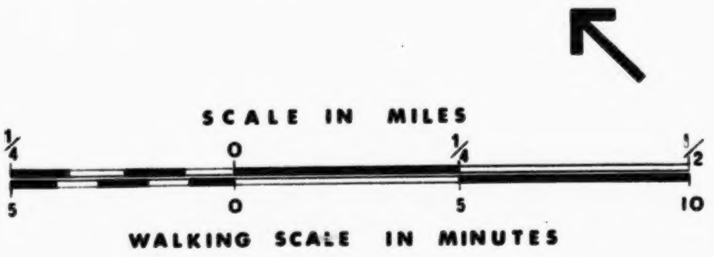
UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

PROPOSED CAMPUS LAND USES

BUILT UP AREAS	☐
ARTS	A
LAND SCIENCES	B
PHYSICAL & LIFE SCIENCES	C
ANIMAL SCIENCES	D
HOUSEHOLD SCIENCES	E
UNIVERSITY FACILITIES	F
HOUSING	G
OPEN SPACE RECREATIONAL, WOODED AREAS	▓
PARKING LOTS	▩
FIELD & RESEARCH CROPS, ORCHARDS	░
ANIMAL HOLDING & PASTURE AREAS	▒
OUTER RING ROAD	═
INNER RING & CONNECTOR ROADS	━
UNIVERSITY BOUNDARY	----

APRIL 1965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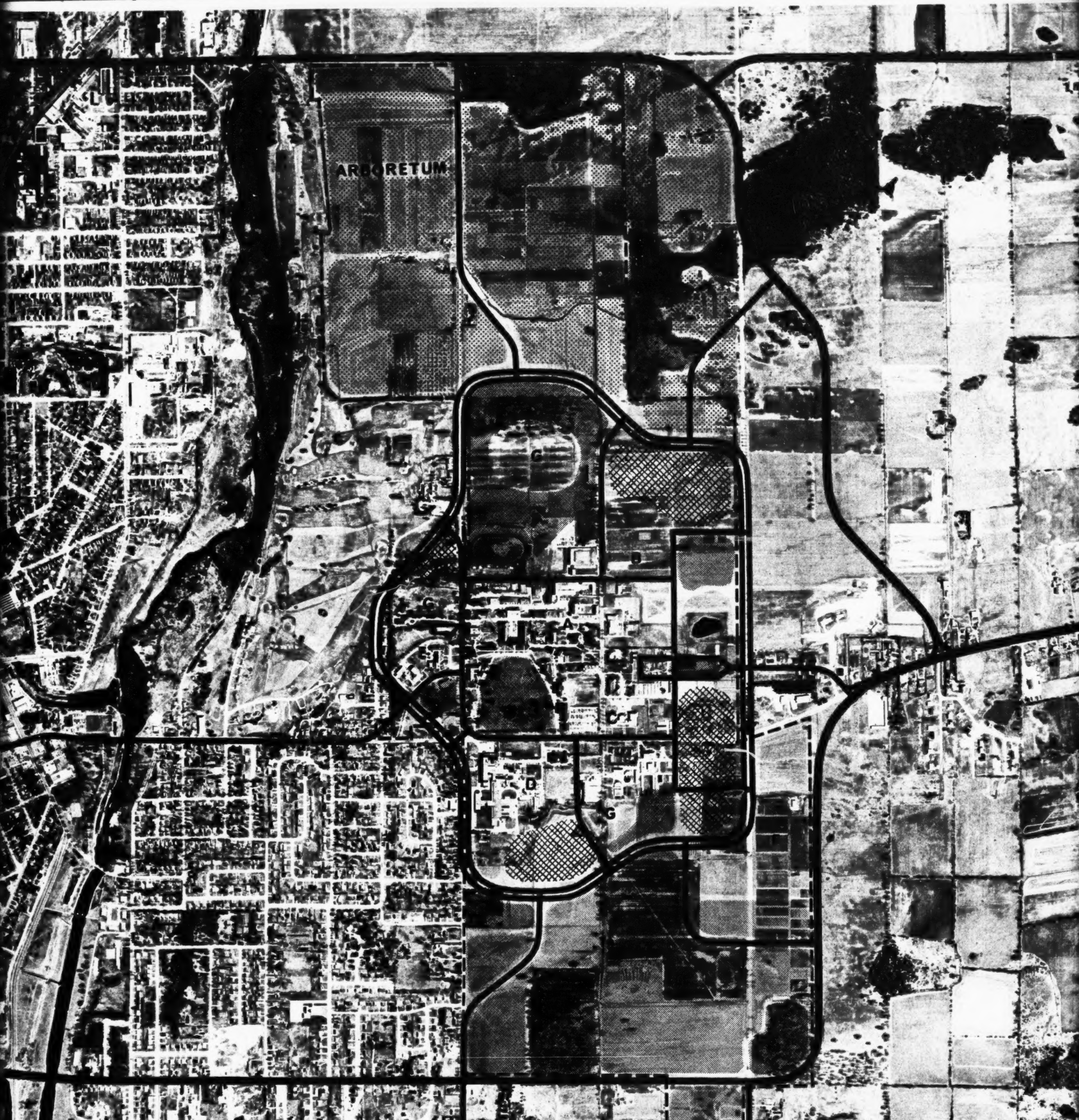
WALKING SCALE IN MINUTES

PLATE 4


ARBORETUM
G
G
B
G
A
C
C
D
G

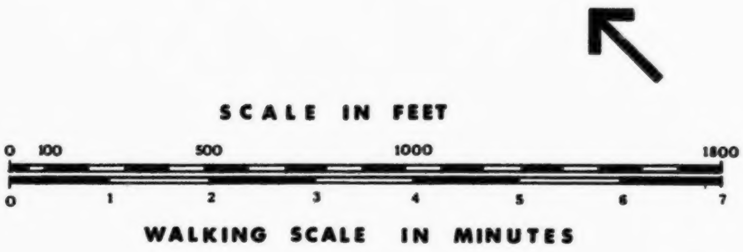
UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

CAMPUS DEVELOPMENT PATTERN AND CIRCULATION

EXISTING BUILDINGS	■
PROPOSED DEVELOPMENT PATTERN	▨
SPECIAL LANDSCAPE FEATURE	▩
MAJOR PEDESTRIAN SPINES	┅
VEHICULAR CIRCULATION	═
BUILDING PHASING TO 1968	A
HOUSING 1ST. STAGE	A 1
ARTS	A 2
CROP SCIENCE AND HERBICIDE	A 3
ANIMAL NUTRITION	A 4
HOUSEHOLD SCIENCE	A 5
LIBRARY	A 6
HOUSING 2ND STAGE	A 7
PHYSIOLOGICAL SCIENCES	A 8
PHYSICAL AND LIFE SCIENCES	A 9
AGRICULTURAL ENGINEERING	A 10
BLDG. PHASING UP TO 6,000 STUDENTS	B
BLDG. PHASING UP TO 10.000 STUDENTS	C
BLDG. PHASING UP TO 15,000 STUDENTS	D

APRIL 1965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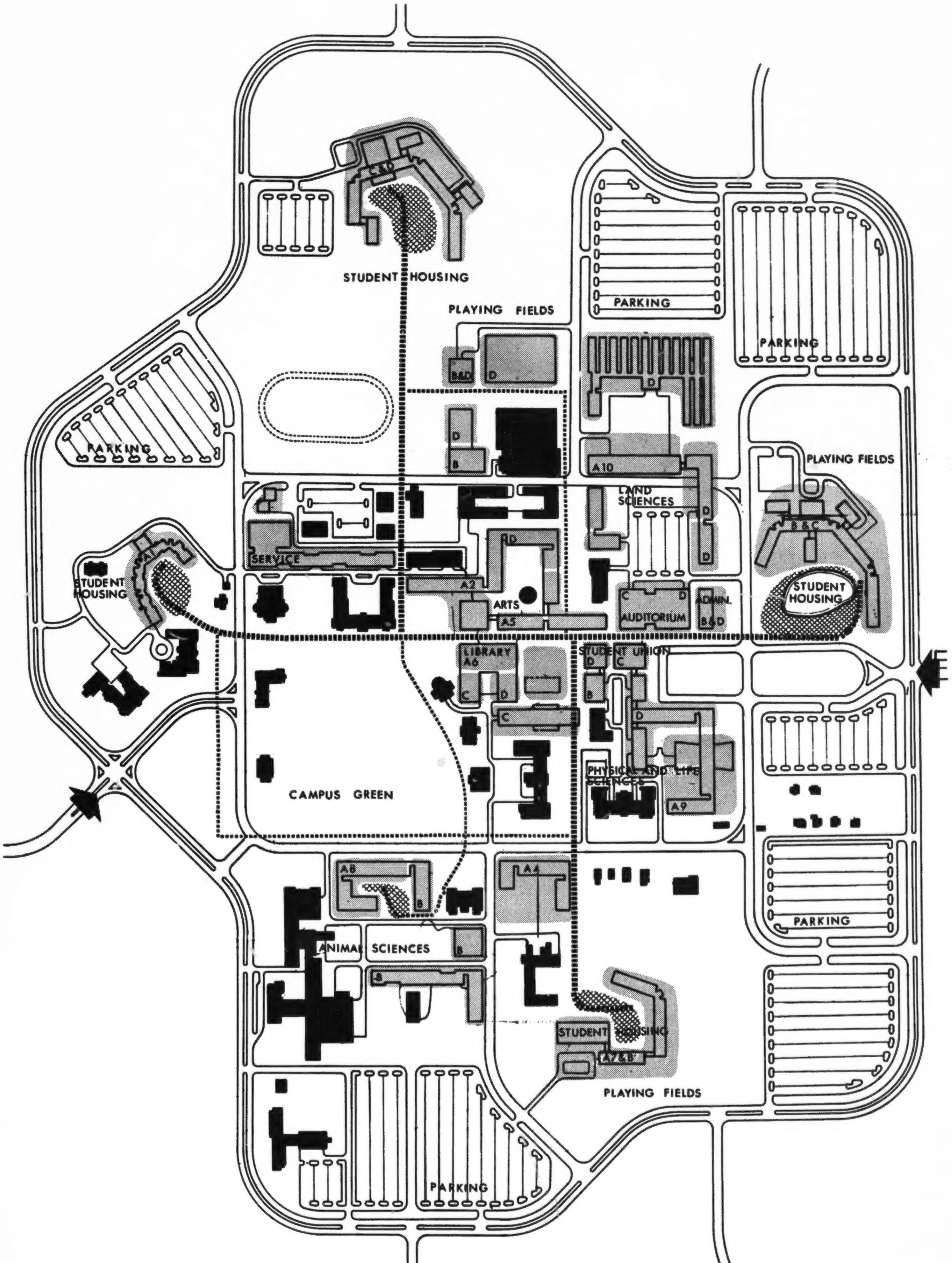
7
WALKING SCALE IN MINUTES

PLATE 5


C&D
STUDENT HOUSING
PLAYING FIELDS
PARKING
PARKING
PARKING
B&D
D
D
D
B
A10
LAND SCIENCES
D
D
PLAYING FIELDS
B&C
STUDENT HOUSING
SERVICE
D
A2
ARTS
A5
C
D
AUDITORIUM
ADMIN.
B&D
STUDENT HOUSING
LIBRARY
A6
C
D
STUDENT UNION
D
C
B
C
D
PHYSICAL AND LIFE SCIENCES
A9
CAMPUS GREEN
PARKING
A8
B
A4
ANIMAL SCIENCES
B
B
STUDENT HOUSING
A7&B
PLAYING FIELDS
PARKING

UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

ILLUSTRATIVE SITE PLAN

PROPOSED BUILDINGS

* **ARTS**
A1 CENTRE FOR ARTS PHASE I
A2 CENTRE FOR ARTS PHASE II
A3 CENTRE FOR ARTS PHASE III
A4 CENTRE FOR CREATIVE ARTS

* **LAND SCIENCES**
B1 CROP SCIENCE & HERBICIDE
B2 AGRICULTURAL ENGINEERING
B3 HORTICULTURAL BUILDING REPLACEMENT
B4 APICULTURAL BUILDING
B5 FIELD HUSBANDRY REPLACEMENT
B6 GREENHOUSES

* **PHYSICAL SCIENCES**
C1 PHYSICAL SCIENCE CENTRE PHASE I
C2 PHYSICAL SCIENCE CENTRE PHASE II
C3 PHYSICAL SCIENCE CENTRE PHASE III

* **ANIMAL SCIENCE**
D1 ANIMAL NUTRITION
D2 PHYSIOLOGICAL SCIENCES
D3 BEEF BARN
D4 LIVESTOCK PAVILION
D5 JUDGING PAVILION

* **HOUSEHOLD SCIENCE**
E1 HOUSEHOLD SCIENCE EXPANSION

* **UNIVERSITY FACILITIES**
F1 LIBRARY
F2 STUDENT UNION
F3 ADMINISTRATION BUILDING
F4 WOMEN'S GYMNASIUM
F5 HEALTH SERVICES
F6 SERVICE BUILDING
F7 FIRE HOUSE
F8 UNIVERSITY AUDITORIUM
F9 MEN'S FIELD HOUSE

* **HOUSING**
G1 UNIVERSITY HOUSING
G2 UNIVERSITY HOUSING
G3 UNIVERSITY HOUSING
G4 UNIVERSITY HOUSING

APRIL 1965

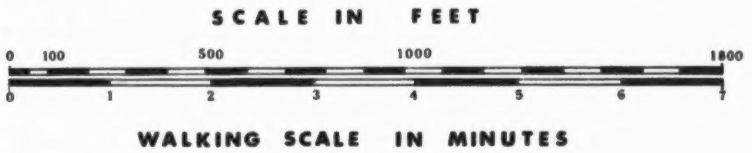
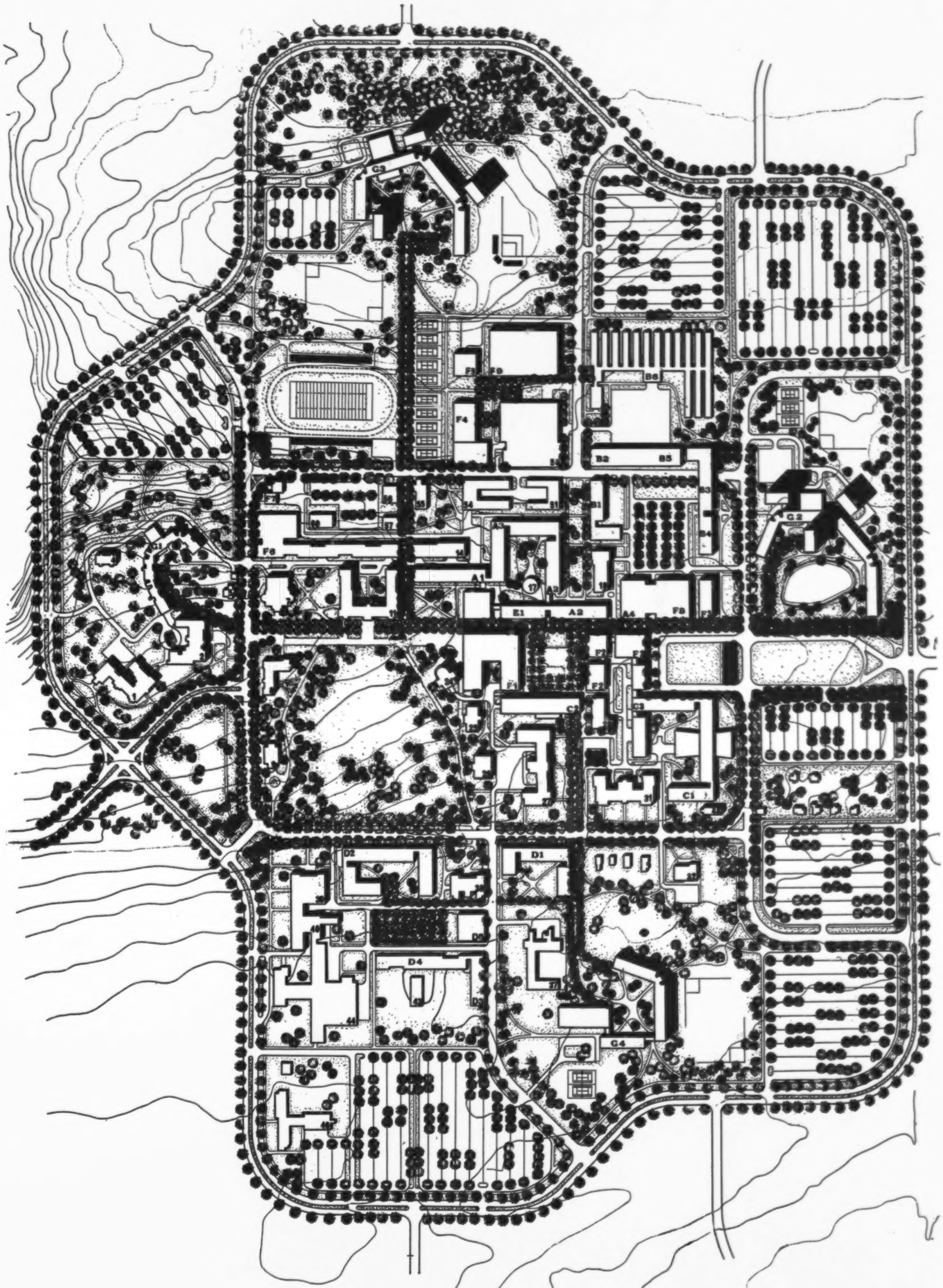


PLATE 6


C5
F5
F9
F4
B6
B2
B5
B3
B1
B4
F7
F6
56
55
54
51
16
57
14
A1
A3
17
A2
18
E1
A2
A4
F8
F3
C2
G1
F7
F2
F1
C3
C1
31
D1
D2
D4
44
43
G4

UNIVERSITY OF GUELPH

LONG RANGE DEVELOPMENT PLAN

PHASING

▒ **PHASE 1**

- A1 CENTRE FOR ARTS
- E1 HOUSEHOLD SCIENCE
- G1 UNIVERSITY HOUSING
- B1 CROP SCIENCE & HERBICIDE
- B2 AGRICULTURAL ENGINEERING
- G2 UNIVERSITY HOUSING
- F1 LIBRARY
- C1 PHYSICAL SCIENCE CENTRE
- D1 ANIMAL NUTRITION
- D2 PHYSIOLOGICAL SCIENCES

□ **PHASE 2**

- G3 UNIVERSITY HOUSING
- F5 HEALTH SERVICES
- F4 WOMEN'S GYMNASIUM
- F6 SERVICE BUILDING
- F3 ADMINISTRATION BUILDING
- G2 UNIVERSITY HOUSING
- F2 STUDENT UNION
- D5 JUDGING PAVILION
- D4 LIVESTOCK PAVILION
- D3 BEEF BARN

■ **PHASE 3**

- G3 UNIVERSITY HOUSING
- F6 SERVICE BUILDING
- A2 CENTRE FOR ARTS
- A4 CENTRE FOR CREATIVE ARTS
- F1 LIBRARY
- F2 STUDENT UNION
- C2 PHYSICAL SCIENCE CENTRE

▓ **PHASE 4**

- F5 HEALTH SERVICES
- F9 MEN'S FIELD HOUSE
- F4 WOMEN'S GYMNASIUM
- B6 GREENHOUSES
- B5 FIELD HUSBANDRY REPLACEMENT
- B3 HORTICULTURAL BUILDING REPLACEMENT
- B4 APICULTURAL BUILDING
- A3 CENTRE FOR ARTS
- F8 UNIVERSITY AUDITORIUM
- F1 LIBRARY
- F2 STUDENT UNION
- C3 PHYSICAL SCIENCE CENTRE
- G4 UNIVERSITY HOUSING

APRIL 1965

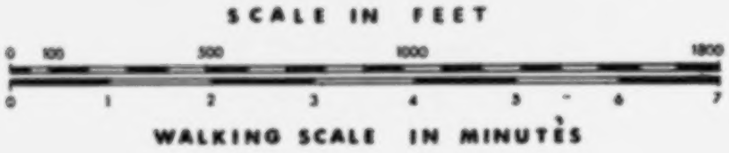
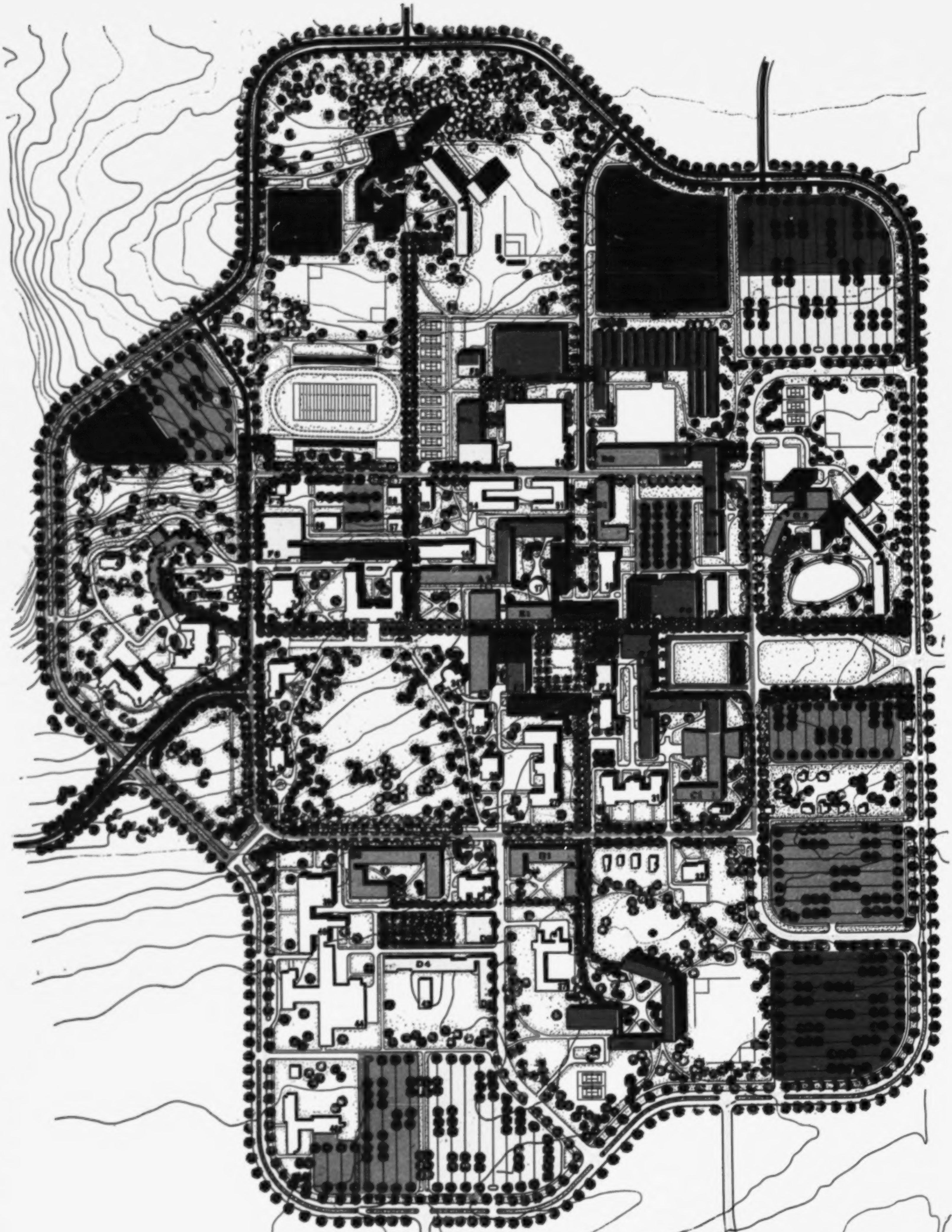


PLATE 7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SECTION 5
LONG RANGE DEVELOPMENT PLAN

5.1 Purpose Of The Plan

Purpose. The Long Range Development Plan (subsequently referred to as the Plan) constitutes the official policy to be followed in the expansion programme of the University. With minor exceptions the Plan focuses on land now held by the University. Recommendations on land acquisition outside the present Campus boundaries was reported on in a separate document in September, 1964. The statements contained in the Plan indicate the arrangement of Campus land uses, major circulation elements, the general location of new facilities and the general landscape character of the future University.

5.2 General Goals and Objectives

The elements of the Plan are arranged so as to sustain the educational and research goals of the University by providing maximum opportunity for contact and communication between the various Colleges and Institutes of the University. Wherever practical the joint use of facilities is to be encouraged.

Through site location decisions, the Plan takes advantage of existing facilities by allowing the maximum utilization rates of instructional and research spaces. It channels renewal and refurbishing funds towards those facilities, which have long term usefulness. The Plan also systematically phases out and replaces structures, that have high maintenance costs or are occupying key sites that may be more intensively used.

The Plan recognizes that a future Campus population of 20,000 people — students, faculty and staff — will generate considerable vehicular traffic. It is desirable for reasons of environmental control, safety and aesthetics, to create the Central Campus as a pedestrian precinct. Simultaneously, provision must be made for the access of service and emergency traffic to all buildings. Large volumes of peak hour automobile traffic must be moved safely and efficiently to and from the street systems outside the Campus to properly designed parking at the edges of the pedestrian precinct.

Inside the Central Campus most instructional facilities and all University communal buildings — Libraries, Unions, Administration and Health Services — are to be sited within an area whose boundaries can be traversed within ten minutes' walking time. This is a mandatory provision of the Plan, which is necessary to allow optimum scheduling of new and old facilities and a reduction of unwarranted and expensive extension of utilities and services. The principle also reflects consideration of the harsh winter and summer climates in Guelph by reducing walking distances, and helps to meet the staged objectives of encouraging communication and contact.

The capacity of the site to accommodate generously sized building programmes for the long range enrolment targets has been thoroughly tested. Adequate provision for expansion beyond that number has been made, even though specific building programmes cannot be given in exact dimensions at this time. Major pedestrian avenues are established so as to connect eventually all University communal buildings, instructional areas, and the major housing areas. The major pedestrian avenues are considered as fixed elements in the Plan. New construction should be designed in the context of these objectives.

The avenues and buildings will frame a series of Campus open spaces. Their design reflects the size and activity of the adjacent buildings. With suitable landscape development, the avenues, roads and open spaces constitute the essential design skeleton of the Plan. The location of these lines and spaces reinforces the basic landforms and landscape character of the existing Campus.

The Plan is arranged such that existing facilities may serve as the beginning points for future growth. With the exception of the Library and first phase Arts complex, all early construction is handled on undeveloped sites, since existing buildings which will eventually be phased out cannot be abandoned until proper provision has been made for sheltering their functions elsewhere. Site selection has been guided by consideration of the best long range pattern for building groupings. Special attention has been given to completing significant sections of the Campus as early as possible.

TABLE 5.1

PRELIMINARY BUILDING SCHEDULE

Use	Target Date for Completion
Housing	Fall 1965
Arts	Fall 1966
Library	Fall 1967
Physical Science Centre	Fall 1967
Crop Science—Herbicide	Fall 1966
Animal Science—Nutrition	Winter 1967
Household Science Additions	*
Housing	Fall 1967
Physiological Science	Winter 1968
Agricultural Engineering	Fall 1968

*Programme under study.

5.3 Assumptions For Development Programmes

Firm commitments in force for new buildings and major additions with preliminary target dates established are listed in Table 5.1.

The size of the first stage Housing is now fixed at 400 units. The sizes and completion dates of the other uses are preliminary estimates subject to change in accordance with detailed academic and architectural programming.

The construction programme listed in Table 5.1 constitutes the first phase of the Plan. Buildings are to be sited in conformance with the principle goals and objectives described in Section 5.1. Site locations are described in Sections 5.4 to 5.8.

For purposes of testing the capacity of the site to accommodate future growth and to illustrate the feasibility of the design concepts, a model of probable development to the 15,000 student level was prepared in collaboration with University faculty and administrative officers. Because of uncertainties regarding funds for construction, the order and magnitude of the total programme cannot be confirmed at this time. However, the sites shown in the Plan are to be used for the types of facilities so designated. The various facilities are described in Sections 5.4 to 5.10 as they might be developed for 6,000, 10,000, and 15,000 student enrolment levels.

Field space requirements are based on the assumption that the University will proceed with a new agricultural research station off Campus. The general disposition of proposed field spaces are summarized in Section 5.17.

Circulation improvements are described in Section 5.19. The underlying assumptions are that the present location of Highway No. 6 can be used as an internal service road for University use and that a pedestrian Campus can be developed in accordance with the general goals and objectives described in Section 5.2.

Utility and service elements are assumed to be extensions of existing service lines, with additional systems being added as needed. Section 5.18 describes these matters in detail.

5.4 Provisions For OAC Buildings

In general the existing OAC Buildings will be used for the nucleus of reconstituted centres of related disciplines. The basic Physical and Life Sciences will be concentrated in the vicinity of the Biology Building and the Chemistry-Microbiology Building. Facilities relating to the Land Sciences will be concentrated east of existing Highway No. 6 in the vicinity of the Soils and Seed Cleaning Buildings. Facilities related to the Animal Sciences will be concentrated west of existing Highway No. 6.

To maintain the integrity of a compact pedestrian Campus, and to allow other facilities to be developed in proximity to OAC, field uses will be kept to the periphery of the building zones.

The Crop Science and Herbicide Building will be sited north of the Soils Building and opposite the Seed Cleaning Building.

Animal Science and Nutrition will be sited south of the Dairy Building and west of Chemistry-Microbiology.

Agricultural Engineering will be sited to the east of the Crop Science and Soils Buildings and will form the northern edge of the building zones for OAC.

The above developments represent the major building programme as now determined. During this first phase, the Agricultural Research Station will be developed on an off Campus site.

Additional programmes assumed for accommodating OAC's share of a University-wide enrolment of 6,000 students include the conversion of the Physics Building into a Mathematics and Statistics centre.

To prepare sites for future expansion of the Arts programmes the Beef Barns south of Seed Cleaning are to be phased out. New barns for holding animals needed for instructional programmes are sited to the west of existing Highway No. 6 in the vicinity of the Dairy Building.

A new Judging Pavilion will be sited near the new barns. The old Judging Building may be used for special instructional purposes, depending on the results of architectural feasibility studies.

During the period in which the University grows to a 10,000 student enrolment level, the following additional measures will be taken with reference to OAC facilities:

—The Horticultural Greenhouses and adjacent Demonstration Plots will be relocated eastward to the periphery of the building zone, allowing for sites for expansion of the sciences. Horticultural disciplines will continue to use the existing Horticulture Building, or a new building will be constructed south of the new Agricultural Engineering facility.

—To provide sites for the University Union expansion, or science expansion, the Apiary Building will be demolished and new facilities will be located in the vicinity of the new Agricultural Engineering and new Horticulture Buildings.

—Replacement for any activities remaining in the old Field Husbandry Building will be sited as part of the complex created by the horticultural and the other land sciences.

Facilities for OAC's diploma courses, not capable of being accommodated in any of the new or existing buildings, will be sited to the west of existing Highway No. 6, in the vicinity of the Animal Science facility.

TABLE 5.2
STATUS OF EXISTING BUILDINGS IN LONG RANGE DEVELOPMENT PLAN — DECEMBER 1964

BUILDING SURVEY — UNIVERSITY OF GUELPH 1964

Code #	Building Name	Use in Long Range Plan
66	Sheep Barn	Continue in use
5	President's Residence	Continue in use
10	Bursar Hall	Continue in use
22	Residence	Phase out for Arts or Household Science
52	Beef Barns	Phase out for Arts expansion
15	Engineering Annex	Phase out for initial Arts
23	Extension Education	Phase out for Library
34	Nutrition Building	Phase out on completion of Animal Science—Nutrition
35	Incubator Building	Phase out
16	Animal Husbandry	Phase out for Arts expansion
55	Power Plant	To be studied
12	Chemistry	Phase out for initial Arts
69	South Barn	Phase out
25	Economics	Continue in use
17	Judging Pavilion	To be studied
1	Macdonald Institute	Continue in use
2	Macdonald Hall	Continue in use
24	Massey Hall	Convert on completion of Library
58	Grounds Office	Continue in use
14	Agriculture Engineering	Continue in use
37	Dairy Barn	Continue in use
21	Field Husbandry	Phase for completion of quadrangle
7	Creelman Hall	Continue in use
32	Graham Hall	Continue in use
26	Physics	Convert
63	Residence	Phase out
78	Residence	Phase out
8	Mills Hall	Continue in use
20	Apiculture	Phase out
38	Dairy Building	Continue in use
39	OVC Main Building	Continue in use
41	Laboratory Building	Phase out for Physiological Sciences
45	Residence	Continue in use
47	Residence	Continue in use
9	Memorial Hall	Continue in use
33	Meat Laboratory	Phase out
4	Watson Hall	Continue in use
59	Trent Institute	Phase out
62	Associate Dormitory	Phase out
65	Water Tower	To be studied
28	Horticulture	Continue in use
29	Greenhouses	Relocate
11	Administration	Convert all to housing
61	Grounds Department	Phase out
40	OVC Extension	Continue in use
42	Animal Hospital	Phase out
49	Bull Barn	Relocate
6	Microbiology	Phase out
13	Chemistry Annex	Phase out
36	Judging Pavilion	Phase out
76	Laboratory Animals	Phase out
73	Laboratory Animals	Phase out
53	Fire House	Relocate
74	Offices	Phase out
51	Seed Cleaning Building	Continue in use
75	Dog Colony	Phase out
54	Vehicle Storage	Continue in use

Code #	Building Name	Use in Longe Range Plan
57	Paint Shop	Continue in use
60	Laundry	Continue in use
64	Field House	Continue in use
71	Laboratory Animals	Phase out
72	Radio Isotope Studies	Phase out
50	Physical Ed. Building	Continue in use
48	Science Service	Continue in use
70	Piggery	Phase out
18	Soils	Continue in use
19	Soils Greenhouses	Continue in use
30	Refrigerated Storage	Continue in use
68	Mink Ranch	Phase out
67	Mink Ranch	Phase out
77	Driving Shed	Phase out
56	Generator Building	Continue in use
31	Biology Building	Continue in use
43	Artificial Breeders	Continue in use
44	Surgical Wing	Continue in use
46	Poultry Pathology	Continue in use
27	Chemistry & Microbiology	Continue in use

5.5 Provisions For OVC Buildings

General science facilities for OVC will be developed as part of the University-wide science precinct on the east side of existing Highway No. 6. Specialized instructional and research facilities will be concentrated around the main OVC buildings. Research facilities in the OVC Research Station near Edinburgh Road will be gradually relocated eastwards as replacement space becomes available. These groups will be concentrated to the south, parallel to Highway No. 6 and towards the main Campus. Growth in a westerly direction is to be discouraged.

Facilities for the Physiological Sciences will be sited south of the main OVC Building and to the north of the Dairy Building.

Provision for refurbished and expansion space for anatomy and pathology will be accommodated by renovating sections of the main OVC Building.

5.6 Provisions For Macdonald Institute Buildings

During the first phase of development, Macdonald Institute's Building will continue as the major centre of instruction.

New facilities for courses in nutrition will be included in the new Animal Science—Nutrition Building.

Additional instructional and research facilities in the first phase of development will be sited in the southern sector of the Campus opposite the proposed new library site and adjacent to the main auditoria of the Arts complex.

At such time as the existing Macdonald Institute Building cannot be maintained, replacement space may be sited in the vicinity of the new facilities.

5.7 Provisions For Wellington College Buildings

The initial phase Arts Complex will be sited to the south of the Administration Building and in close proximity to the first phase library development.

The initial phase of the Physical Sciences group will be sited to the east of the Chemistry-Microbiology Building.

Expansion of the Arts Complex will be to the south and east of the first phase buildings.

Expansion of the Science Complex will occur to the south and east of the Biology Building.

Facilities for the Fine Arts will be sited to the south of the Arts Complex and in the vicinity of the University Auditoria.

5.8 Provisions For The University Library

The University Library will be sited at the crossroads of the Campus and in the vicinity of the Wellington College Arts Complex, the basic Science Buildings of OAC, and other major teaching facilities of other academic units.

The first stage site will be near the existing extension Education Building, which will be demolished.

Expansion of the Library will be accommodated on sites adjacent to the new facility.

5.9 Provisions For Extension Services

Extension Services may occupy any of the following: the Economics Building (if it is not reconverted for an interim Administration Building); Macdonald Institute Building (if a new replacement facility is constructed for Macdonald); space in a new Administration Building on an interim basis until such space is needed for expanded administration; or space in a special facility designed for its own use. In the latter instance this facility should be sited near the major University Auditoria and University Union.

5.10 Expansion Sites For Buildings Beyond 15,000 Student Enrolment and For Other Educational Units

This section covers situations estimated presently to be beyond the time span of this Plan. Site locations have been identified for generous building programmes to the 15,000 student enrolment level for OAC, OVC, Macdonald Institute and Wellington College. For further expansion of facilities the following site priorities should be maintained:

For OAC animal sciences, areas to the north of the new Animal Science Buildings;

For OAC land sciences, areas inward from the periphery of the complex formed by the new Agricultural Engineering, Horticultural, Crop Science and Field Husbandry, then eastward;

For OVC areas to the south towards Dairy; for a special function building the southwest corner of College Avenue and existing Highway No. 6.

For Macdonald, if prior to Arts or Science expansion beyond 15,000 student enrolment level, then those long range sites reserved for Arts and Sciences in the Central Campus area; if expansion needs occur after occupancy of those sites by other uses, then land now occupied by central vehicle storage;

For Wellington Arts, expansion by replacing old Agricultural Engineering;

For Wellington Sciences expansion by replacing old Horticulture, old Economics and old Physics Buildings.

Parking lots on periphery of Central Campus are also available for expansion. When lots are needed for expansion, parking structures should be built on portions of the previous lots and additional storage lots built further from the Campus centre.

The site at the northern gateway to the Campus is reserved for a professional school or University housing.

The site opposite Biology and new Wellington Sciences is reserved for a medical or engineering school.

5.11 Provision For Physical Education, Theatre and Outdoor Recreation Programmes

Additional physical education and athletic programme areas will be clustered around the existing Physical Education Building, which is already sited along two of the major Campus pedestrian paths. Existing and proposed facilities will therefore be in good proximity of playing fields and housing areas.

The Women's Gymnasium will be sited to the north of the existing Men's Physical Education Building.

The Women's Swimming Pool will be sited east of the Women's Gymnasium and attached to it.

The University Field House will be sited east of the Men's Physical Education Building.

If the University's athletic programme is expanded to include an enlarged stadium, the stadium will be relocated to the periphery of the University Campus.

Informal recreation facilities, both indoors such as squash courts, and outdoors such as informal playing fields and tennis courts, will be developed in the vicinity of housing areas.

The major open space, the Campus green in front of the existing Administration Building will continue in use as a playing field.

5.12 Administration Building

Administration offices are to be centralized in one location.

Any new Administration Building is to be sited close to the main gateway to the Campus, on the eastern edge of the long range building zone, and adjacent to major parking areas.

5.13 University Health Services

Health services are to be centralized in one facility close to the core of the Campus.

Studies to date indicate that a suitable site could be developed near the Physical Education Centre, and along the main pedestrian path leading to the eastern student housing group.

5.14 University Unions and Faculty Centre

Sites are provided for a three stage development of a University Union, which is to serve as the Campus wide social and service centre, especially for off Campus students.

Site one is to the east of the Horticultural Building.

Site two is at the head of the main Campus gateway and in the vicinity of the main University Auditorium.

Site three is the area now occupied by Apiary Building. All three buildings will form a single unit on completion of this phase.

The sites are selected so that the Union facilities compose on the north side with the Library, to frame the major Campus core; on the south side compose with the Auditorium to form a semi-public core at the end of the main Campus gateway. At the same time adequate provision is made for vehicular servicing and parking.

The sites further reinforce the major pedestrian avenues that cross the Campus.

Subject to architectural feasibility studies, Massey Library is to be converted into a Faculty Centre when vacated.

5.15 Housing

The Plan proposes housing accommodation for 40 per cent of the student body on Campus.

The University will encourage the community-at-large to provide housing facilities near the Campus for the remaining percentage of the student body.

A 2,000 student housing complex, with dining halls, kitchens and related facilities will be developed on the south side of the Campus as a terminus of the major north-south pedestrian path.

A 2,000 student housing complex, with dining halls, kitchen and related communal facilities will be developed east of the Physical Education and outdoor recreation area at the terminus of the major west-east pedestrian path.

The initial phase (800 units, dining hall, kitchen and related facilities) of a 2,000 unit complex will be developed west of the Animal Science-Nutrition at the western terminus of a major west-east pedestrian axis.

On completion of new administrative office space in the existing facilities, the Administration Building will be converted to housing.

Subject to further architectural and site planning analysis, existing housing will be kept in use to the extent shown on the Plan.

A limited number of married-student accommodations will be constructed on Campus on a site outside the Central Campus area. Size and site are to be determined on the basis of a detailed architectural programme.

5.16 University Services

University service shops, warehouses and related facilities will be retained in the general vicinity of their present location.

If considerable construction for University service facilities is to be undertaken at one time, a new site on the periphery of the Campus is recommended.

The University firehouse will be relocated to allow for Arts expansion in the vicinity of the Service Building.

5.17 Field Spaces

The University recognizes that Field Spaces are important assets in the University's teaching, research and recreation programmes. While sizeable acreage must be converted to building sites, the University intends to replace in kind all Field Spaces so displaced, and to add to the land inventory additional acreage as needed to carry out expanded programmes.

Sites for initial phase construction have been selected to give sufficient lead time for the gradual transfer of land uses. The following major steps are to be taken:

The University will create an Agricultural Research Centre on an off Campus site.

On Campus fields required for OAC's land sciences programmes will be concentrated east of the central Campus building zone.

If the University Arboretum plans are materialized, the initial development, on land now held by the University, will be concentrated in the eastern sector of Central Campus.

On Campus fields required for OAC's animal science programmes will be concentrated in the southwest sector of the Central Campus.

On Campus fields for OVC's programmes will be concentrated in the northwest sector of the Central Campus.

Field areas will be kept to the periphery of the long range building zone on Central Campus.

The University will develop at least an additional thirty-five acres of outdoor recreational land and playing fields. These are to be concentrated in the vicinity of the housing areas and near the physical education and athletic centre.

5.18 Utilities

The University recognizes that sizeable new utility improvements will have to be undertaken to service the expanded construction, and Engineering studies have been initiated to determine the full extent and timing of necessary improvements. Building locations for initial construction have been selected in part due to proximity to existing lines and systems. Building sites for later expansion have been arranged to meet the educational, research, design and operational goals of the University's long range growth expectations. These are the overriding considerations, and the utility pattern will be arranged to support the land uses and building location plans.

5.19 Circulation

A well designed circulation system, capable of staged development, is essential to the long range growth of the University. The following major features are considered fixed elements in the long range plan.

—The circulation system will serve as boundaries of Campus land uses and emphasize points of importance.

—Highway No. 6 at present splits the Central Campus into two parts. The University cannot economically transfer all of its facilities to one side or the other of the right-of-way. The previously mentioned possibility of depressing the highway and linking the two separated parts with bridges does not present an economically feasible or practical solution either. For reasons of environmental control, safety and economical use of the University's lands it is urgent that Highway No. 6 be relocated to the periphery of the University. This relocation will then permit the integration of portions of the present right-of-way into an internal circulation system limited to University traffic, discouraging through traffic.

The major Campus gateway is located on the south side of the Campus off Stone Road and will link directly to Highway No. 6. This will enable the anticipated large volume of automobile traffic from Highway No. 401 and the Toronto-Hamilton-Preston areas to approach the heart of the Central Campus without violating any of the design and planning objectives herein established.

The south Campus gateway is a mall, terminated by the new Administration Building, the University Union, and the University Auditorium. Large parking lots are located nearby.

A second gateway is established on the north side of the Campus, to provide a useful entrance for traffic from College Hill and parts of downtown Guelph. The gateway establishes a vista into the traditional parts of the Campus. The entrance road connects with the inner ring road for easy distribution of traffic to major origin and destination points within the Campus proper.

The major Campus gateway from the east and the west entrance from downtown Guelph will each provide direct access to the external and internal Central Campus vehicular circulation systems.

The overall circulation plan of the University is designed to reduce the need for automobile circulation by resident students and staff, and by off Campus populations once they have arrived on Campus. A ring road concept has been established with connecting links to channelize traffic within the developed areas. This will permit freer pedestrian movements.

An outer ring road therefore is to be developed at the periphery of the Campus to distribute approaching traffic around the Campus to the various connector roads and major parking lots. The cross section of the road is designed for four traffic lanes, two in each direction, with 25 foot carriage-ways separated by a 15 foot planted median strip.

An inner ring road is located at the periphery of the built up area of Central Campus. It distributes traffic to parking lots, pedestrian drop-offs and service areas. It will serve as the major bus route. The cross section is designed as a 40 foot pavement without median strip, providing two traffic lanes in each direction. The southwest section of the inner ring system will incorporate a portion of the present Highway No. 6 right-of-way.

Connector roads serve the inner and outer rings and distribute traffic to parking lots. Cross sections are also designed as 40 foot pavement without median strips.

Local service roads provide access to buildings and service areas, with cross sections of 20 to 24 feet, depending on need.

Selected segments of local service roads may also serve as pedestrian paths, wherever light service traffic is expected.

In line with the projections reported in September 1964, the Plan provides parking for approximately 5,700 vehicles at the 15,000 student enrolment level and proportionate amounts at the earlier stages of growth.

All major parking lots are kept to the periphery of the built up areas of the Central Campus.

Minor parking areas close to central Campus buildings are provided as needed from time to time for special users, but these are restricted in number.

University vehicular storage and service areas are kept to the periphery in the east corner of the Central Campus.

The built up area of the Central Campus within the confines of the inner ring road has been designed as a pedestrian precinct punctured only by minor roads for services and vehicular access to pedestrian drop-off points. Drop-offs will be located near the major buildings in the central pedestrian precinct such as the Library, Student Union and Phase II of the Physical and Life Sciences Centre.

All buildings are accessible by emergency or service vehicles.

Major pedestrian avenues do not coincide with the alignment of major vehicular roads. Where major pedestrian movements intersect Campus streets the former are to have the right-of-way and pedestrian crosswalks will be established.

Formal pedestrian avenues connect four major sub Campus areas, the student residences complexes to the central academic area. The terminal points at residences will each have a similar landscape feature such as a large space with a paved court where students can congregate.

The major formal pedestrian avenue is a north-south spine parallel to the front of the present Administration Building and connects all major University-wide buildings such as the Library, Student Union, Auditoria and new Administration Building. The spine also links the major campus open spaces of

—the north Campus plaza framed by the new students' residence.

—the plaza in front of Creelman

—the Campus Green in front of the present Administration Building

—the space formed by the first stage Arts, the present Administration and the planting along the walkway itself

—the academic quadrangle formed by the new Arts complex and Household Sciences

—The Central Campus quadrangle formed by the Arts, Household Sciences, University Union, Physical Sciences and the Library

—the ceremonial entrance green formed by the University Union, Creative Arts and University Auditorium

—the University Mall

—and the south Campus plaza framed by the Student Housing on the east side

A formal east-west pedestrian avenue through the Central Campus quadrangle connects the Land Sciences, Physical Education and housing area to the east with the Physical Sciences, Animal Nutrition Buildings and housing to the west.

The blocking of vehicular traffic along the southern edge of the Campus Green and the redevelopment of the driveway as a pedestrian walkway will connect OVC and OAC's animal sciences with the Library and areas adjacent to the present Administration Building. An extension of the walkway eastward as a major pedestrian avenue connects the residence on the hill to the central core.

The formal layout of the major walkways and the use of similar materials throughout their construction will give unity and structure to the Central Academic Precinct. 10-15′ wide paths will be identified by consistent handling of paving, plant materials and lighting throughout their length. The journey along will be broken up by introducing special design incidents such as informal sitting areas, planters, kiosks for student bulletins, etc., near major building entrances, or quiet sheltered areas along the way. For example, in moving from a housing complex to the classroom the pedestrian may leave an informal sitting space in front of the dormitory, move along a wide avenue that has a uniform line of trees on either side, pass through a tight space with a sitting area on one or both sides of the path, cross another avenue that has a long vista, and eventually arrive at another special open space related to a specific building. Through the placement of structures and correlated landscape treatment a sense of direction of pedestrian movement is achieved. It is recommended that concrete with a special or distinctive surface treatment be used throughout the major walkways. A strip of brick edging might be introduced along both edges of the walk and brick paving used in the plazas at the terminus of the walkways and in areas of pedestrian congregation and activity along their length. Bands of brick paving can be introduced where different walkways intersect the avenues and at the street crossings for the crosswalks.

Informal or secondary walkways complement the avenues. These paths will vary in width from 6-10′ and it is recommended that they be constructed of asphalt. The bituminous material will allow flexibility of construction for a free form curvilinear alignment and for a widening of the paths where they cross. This type of treatment is necessary to provide direct and pleasant cross-movements in accordance with numerous pedestrian desire lines.

5.20 Landscape Concept

The objectives of the planting concept are to identify the boundaries of the academic area, to emphasize the major gateways and circulation systems and to provide visual structure and form within the Campus. The Landscape treatment will provide a visual organization of the Central Campus, which will be strengthened by a consistent choice of plant materials for different situations.

A canopy tree planting along the two ring roads will make the overall structure readily identifiable and will give a strong sense of direction. The trees will also reinforce the location of the roads as boundaries of the inner academic core and the outer limit of the future intensive site development. It is recommended that rows of canopy trees such as Sugar Maples be planted along the ring road systems. The trees along the outer ring road would be planted at greater spaced intervals to make it easily recognizable from the internal ring road. Informal planting within the inner academic precinct should be strengthened near the periphery, in order to emphasize the containing effect of the ring road.

The Plan indicates that the connector roads between the two ring systems be planted with rows of low canopy deciduous trees such as native crab apples.

The large peripheral parking areas should be screened or buffered by constructing continuous earth mounds or berms in forty foot separation strips between the storage lots and the roads which border them.

Canopy shade trees such as the Sycamore or the Planetree Maple would be planted intermittently within the paved parking lots for visual relief as well as cooling effects during the summer.

The bank of trees along the outer peripheral road should be punctured at the major vehicular gateway on the south side of the Campus, to form an open mall with double rows of trees on either side. The mall will provide a symbolic approach to the Campus and to the ceremonial entrance space bordered by the Student Union, Creative Arts, Administration and Auditorium. This distinctive design expression will emphasize the importance of these University-wide buildings and make them stand out from surrounding residential and instructional buildings.

The second gateway of importance, the entrance from the City of Guelph, leading directly to the present centre of Campus activity, should be planted in the same manner as the inner ring road. The carriage ways are separated by a turfed median with a single row of tall canopy trees closely spaced on either side.

All other vehicular entrances to the Campus should be planted informally with trees well back from the road intersections for emphasis to maintain proper site distance.

A double row of canopy shade trees planted in a strong line on either side of the formal pedestrian ways will visually emphasize the pedestrian spine system and strengthen the visual organization of the central academic area. A single species of a formal branching character such as Littleleaf Linden is recommended for the entire length of the system.

For informal walkways groves of canopy trees more informal in character such as the Honey Locust interspersed with occasional drifts of Japanese Tree Lilacs or Japanese Flowering Cherries with year round accents of Yews and evergreens are recommended.

The existing Campus Green should continue to consist simply of shade trees and lawn area. Some additional plant material is needed to strengthen and define the outer limit of the space. Sycamore, Red Oak and Kentucky Coffee trees are recommended for additional and replacement materials. The Green should be linked to all parts of the Campus by informal planting along the secondary walkway and open space system.

The nature of the planting in the Central Campus Quadrangle should be of a formal and urban character which will emphasize the importance of the space as an important pedestrian cross road where large crowds would congregate for student rallys or speeches and outdoor convocations would be held. Where the north-south spine passes through the Quadrangle the tree pattern should be extended to wrap around the outer limit of the space and formally link it with the major sub Campus areas.

Planting within the University Mall at the south Campus gateway should be limited to a large turf area with a double row of canopy trees on either side. A block of low ornamental trees such as cherry or crab apple would be planted where the entrance approach intersects the inner ring road to provide partial separation of the ceremonial entrance green from the Mall approach.

A bosque type of tree planting within the spaces framed by the individual college complexes of Physical Education, Land Sciences and O.V.C. would give identity to each one as a separate academic function. American Linden would be appropriate for this type of planting.

The quadrangle formed within the Arts complex and other secondary spaces should be given an informal planting treatment. Wherever possible groupings of existing trees worth saving should be maintained and preserved during building construction. The many sheltered spaces within the academic complex offer the opportunity to use some specimen material and plantings of broad leaved evergreens and other domestic hybrids in addition to native indigenous materials.

It should be noted that collections of exotics and varied species of plant material should be reserved for the future arboretum, which will be developed for instructional and research purposes. Specimen material may be used for accent and variety within the Central Campus but it should conform to the overall aesthetic and functional concept.

The University should make proper provision for landscape treatment in the vicinity of all new buildings.

The details are left to subsequent efforts of staging and planting design projects as they are identified, planned and completed along with building projects over the years.

5.21 Campus Lighting

The inner and outer ring road systems and the connecting roads between should be lighted in a similar manner with fluorescent, mercury vapour or other approved fixtures mounted at a suitable height on standards of an approved quality of design.

For area and safety lighting throughout the campus, including the secondary walkways and the drop-off and service drives, a concealed lamp, mushroom-type of hooded fixture is recommended. These lamps will be mounted at heights from 3 to 10 feet depending on the type of area to be lighted. The selection or design of this fixture will provide a pleasant safety lighting effect.

A low mounting height enables the fixture to be used in planting beds and around paved courts near buildings where ground surface lighting is required. For area and walkway lighting an 8′ mounting height is recommended and the support standard may be increased to 10 feet for lighting service drives or pedestrian drop-offs.

Along the formal pedestrian ways an acrylic, ball-globe type of lamp fixture is recommended at a 10′ mounting height. The beacons of light spaced in a rigid manner along the avenues give emphasis and give direction to the spine system at night. Where the spines terminate at the dormitory complexes or pass through areas of great pedestrian concentration or near major building entrances the number of globes on the standards would be increased from one to a cluster of 3 or more depending on the situation and the amount of activity in the area. These fixtures would also be used within the Central Campus quadrangle and around the periphery of the drop-off driveway bordering the Ceremonial Entrance Green. The acrylic globes should be unbreakable, approximately 18″ in diameter and treated so that an even, diffused light is produced.

Existing Campus lighting fixtures would be phased out as new construction and redevelopment progresses over the years.

The end result of the clearly defined lighting concept recommended above will be a pattern of efficient safety illumination that will give structure and organization to the Campus at night.

5.22 Design Controls

The University's Long Range Development Plan is essentially a horizontally expressed design. It integrates the natural land forms and existing vegetation with new lines of movement and new Campus open spaces. These elements comprise the basic skeleton of the Plan.

Major emphasis should be given to the design of major circulation lines and Campus open spaces to serve as the self-perpetuating elements in the the long range design.

The University should encourage the development of a limited vocabulary of building design forms, so that many architects can contribute to the long range design.

It is intended that University-wide buildings such as Libraries, Unions, and major Auditoria will serve as foreground buildings, and that by prominence of site and through architectural expression their special importance will be established.

Buildings which tend to be composed of repeated functions such as classrooms, laboratories and housing will be considered background buildings. The University should advance a system of design and construction which will enable these buildings, wherever possible, to be linked together into a harmonious whole. The concept of a comprehensive and pleasing University environment will be further consolidated with the construction of arcaded links between and along all major buildings.

Design unity should be sought through the selection of building materials, building heights, and the disposition of landscape elements, especially the selection of trees, pavings, street furniture, lighting and ground covers.

Design inflection should be sought through the skillful orchestration of foreground and background buildings, especially in the vicinity of the Campus Quadrangle and the University Quadrangle; through the sequence of views and vistas experienced along the major pedestrian paths and at the major Campus gateways; and through careful attention to composing the surface elements on all buildings.

To achieve the anticipated future design, the land use locations, the major circulation elements, Campus open spaces and building locations should be considered as fixed elements in the plan.

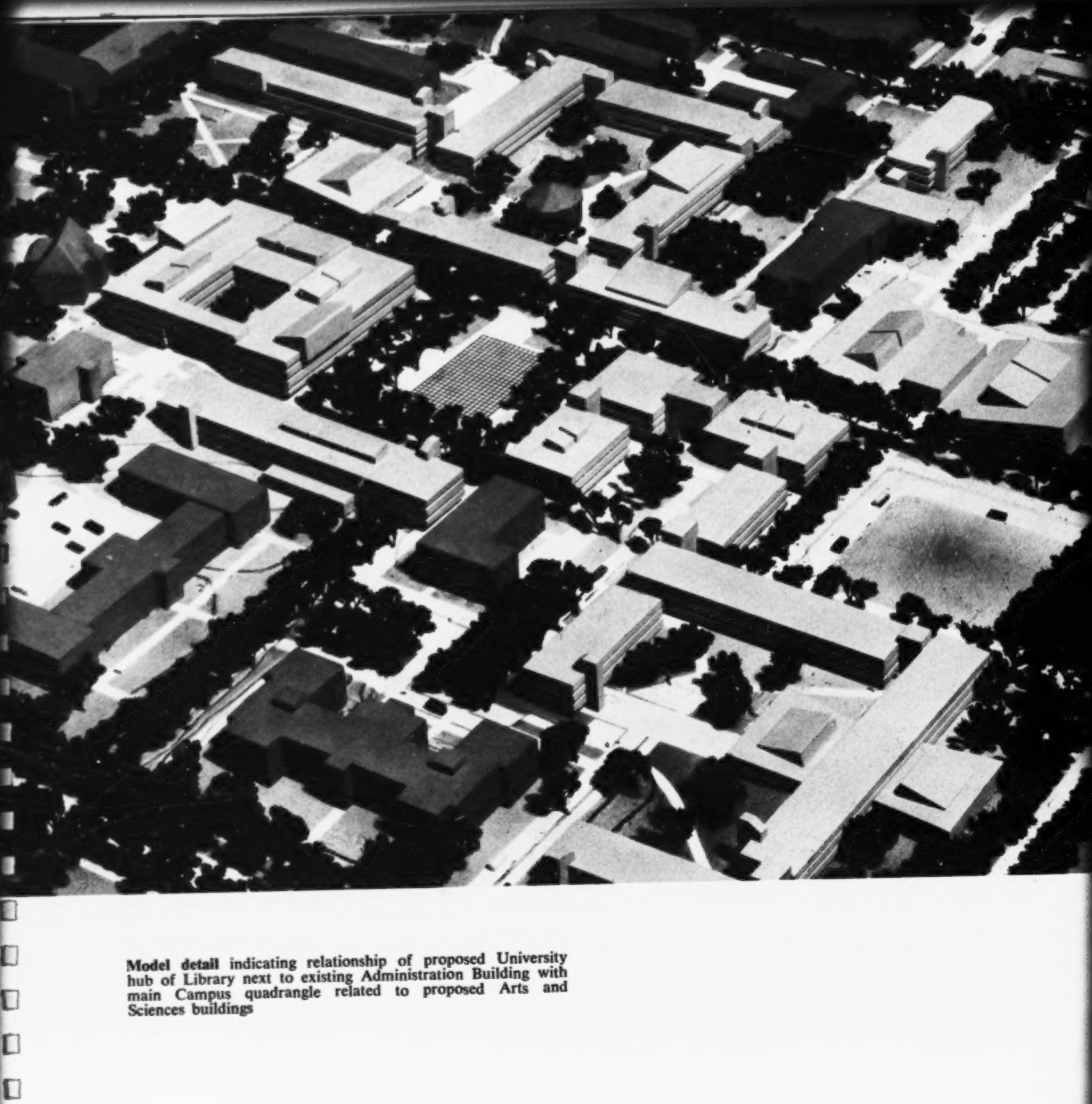
It is recommended that each new building design be especially examined with reference to its contribution to the overall effect thus described and proper provision for landscape treatment in the vicinity of all new buildings, be made.

Landscape projects connected to circulation improvements should be simultaneously carried on with construction of the circulation improvements in accordance with the Plan.

As a matter of historic preservation, and as symbols of its past, the University has recorded its intention of preserving the Main Mall and the following buildings which front it: Administration Building, Massey Library, War Memorial, Macdonald Institute and Macdonald Hall. From time to time additional buildings may be added to this list.

5.23 Community Development

The University should accept its role as a generator of urban growth in the Guelph area and record its desire to constructively collaborate in the proper planning of its environs, and give evidence of its concern by making public these policy statements.



Model detail indicating relationship of proposed University hub of Library next to existing Administration Building with main Campus quadrangle related to proposed Arts and Sciences buildings